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MEDICAL FACTS

AND

OBSERVATIONS.

VOL. V.

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MEDICAL FACTS

AND

OBSERVATIONS.

VOLUME THE FIFTH.

L O N D O N :

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STREET LAMP

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DIRECTIONS TO THE BINDER.

Plate the First may be placed at page 95, where the references to it are explained; and Plate the Second at page 98.

ERRATUM.

In Vol. IV. page 122, line 1, *for* but the uterus, *read* but the discharge from the uterus.

MEDICAL FACTS

AND

OBSERVATIONS.

- I. *An Account of two Cases of Popliteal Aneurism; communicated in a Letter to Samuel Foart Simmons, M.D. F.R.S. by Mr. Thompson Forster, Surgeon on the Staff of the Army, and Surgeon to Guy's Hospital.*

To Dr. SIMMONS.

DEAR SIR,

THE mode of operation for the popliteal aneurism, adopted by that truly-ingenuous physiologist, the late Mr. John Hunter, may perhaps be considered as one of the most valuable improvements of modern surgery. It ap-

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pears

pears evidently to have been the result of a judicious chain of reasoning, founded on a thorough knowledge of the vascular system, and of the powers residing in the absorbents; but the full extent of its merits or defects, and consequently the grounds on which it may be susceptible of farther improvement, can be ascertained only by the accumulated observations of different practitioners, accurately and candidly related. Hence it is that having lately had two cases under my care, in which I have performed the operation in question, I consider it as a sort of duty to communicate them to the Public: I therefore take the liberty of transmitting to you the following account of them, to be inserted, if you deem it sufficiently interesting, in your valuable collection of Medical Facts and Observations.

Believe me, Dear Sir,

Yours, &c.

October 22, 1793.

THOMPSON FORSTER.

CASE

CASE I.

Joseph Keeping, aged thirty-five years, a strong, healthy, hard-working man, by trade a carpenter, was admitted as my patient into Guy's Hospital, on the 17th of August, 1791, for the cure of an aneurism of the popliteal artery.

This complaint had begun about a year before, with a sudden pain in the calf of his leg, followed by a slight universal swelling of the whole limb, but not attended with sufficient inconvenience to hinder him from working daily at his business.

At the end of a fortnight he perceived a small tumour more immediately in the ham; and in the course of about six weeks from its first appearance, it increased to the size of half a golden pippin, forming a protrusion which appeared, in some measure, distinct from the general œdematous enlargement of the limb.

To this tumour he applied embrocations and oils recommended by different persons of his acquaintance, for two months more, at the ex-

piration of which time, he was so far from being better, that it was not without great pain he could attend his business, the limb being more universally enlarged, and the difficulty of moving it so much increased, that he now found himself obliged to desist intirely from all manner of work. In this state he remained some time longer, with the hope that rest, which gave him ease, would in time cure his complaint. He still continued, however, to rub the limb with oils of some kind or other, till at length his hand, by frequently going over the small tumour in the ham, became sensible of a pretty strong pulsation in it. Being much alarmed at this, he came into Guy's Hospital in December, 1790, where rest, an horizontal position, and the continued use of a bandage from the foot to the middle of the thigh, considerably diminished the general enlargement of the limb, but the protruding pulsating tumour remained in the same state as before.

As he was very desirous of returning to his business, and no immediate danger of his life was then apprehended, he was permitted, towards the end of January, 1791, to go out of the hospital, as he worked near it, but was desired to come again whenever the complaint should

should give him any inconvenience, and was directed to favor the limb as much as he could, and to keep it constantly rolled from the foot upwards. We heard nothing of him till August 17, 1791, when he appeared to be in a very alarming state. His foot, leg, and ham, were now very much enlarged, and the tumour, before mentioned, was increased and tense; the skin was very thin, exhibiting that appearance which an abscess acquires when in a state of perfect suppuration; and the pulsation of the tumour was visible, even at some distance from him; his pulse was very quick and full; he was extremely irritable and weak; he had a dry skin, with considerable thirst; and anxiety was strongly marked in his countenance.

I immediately ordered ten ounces of blood to be taken from his arm, and a purgative medicine to be given in the morning, as he had not had any evacuation for four days.

On the morning of the 22d, in consultation with my colleagues, Messrs. Lucas and Cooper, it was judged advisable, in order to preserve his life, that the femoral artery should be secured, and to trust to the absorbing powers to lessen the tumour and the enlarged limb.

I placed a tourniquet on the limb as high as possible, in order to have room enough; but the tourniquet was intirely loose, and of course made no preffure on the artery. It was so placed, however, as to be capable of instantly stopping the circulation if required. I then made an incision in the course of the under edge of the sartorius muscle, about three inches in length, and, by raising up the lower edge of that muscle, I came at the artery, about two inches before it perforates the triceps femoris; after carefully separating it from the vein and nerve, I passed a broad ligature by means of a common eyed-probe under it, placing a dossil of lint on the artery immediately over the ligature, upon which lint I laid a cylindrical piece of wood, about a third of an inch in diameter, and three quarters of an inch long, so that on tying the ligature, the artery, lint, and stick became included in such a manner as to make the artery spread itself more than half round the stick thus cushioned with the dossil of lint.

I conceive all this precaution to be absolutely necessary to guard against the circumstance of the coats of the artery being cut through by the ligature in the first instance; and, in the second, to prevent the impetus of the blood from
throwing

throwing off the ligature at the end of some days, when the ulcerative process may have weakened the coats of the artery at the compressed part: and if we allow a possibility of this happening before the deposit of coagulable lymph shall have become sufficiently vascular to render it capable of resisting the force of the column of blood opposed to it, every precaution should be taken to prevent an hæmorrhage from so large a vessel, which most likely would prove fatal before assistance could be procured; these were my reasons for interposing the lint and stick between the ligature and the artery. I then drew the ligature tight enough to stop all pulsation in the tumour below; I left the ends of the ligature out of the wound, which I partially closed; the dressings were superficial, and I applied an easy bandage.

The first consequence resulting from this ligature, was an immediate stop to the pulsation in the tumour, and an evidently-increased fulness in the pulse at the wrist. The patient was kept perfectly quiet, and allowed only diluting drinks; at eight in the evening, (about seven hours after the operation) his pulse being quick and full, six ounces of blood were taken from his arm, and he took a grain of opium.

Aug. 23d. He had passed a restless night, with thirst, and pain in his thigh. The temperature of the limb was this day several degrees lower than that of the other limb; but as I subjoin a table of temperature, I shall omit it in the narrative; his pulse, however, was more moderate; he had some good sleep during the day, and his pain became less, but his pulse was quicker towards the evening; the opiate was repeated.

24th. This morning he scarcely complained of any pain in the limb. As he was costive, I ordered him some castor oil, by means of which stools were procured.

The next day, (the 25th) he was very calm, and without any pain in the limb, having slept well the preceding night; still, however, his pulse kept at from 102 to 110. I gave him a saline julep and the opiate as before.

Except a quickness of his pulse, which came on every evening, costiveness, which was occasionally relieved, and a certain irritability about him, nothing occurred till the 27th, when an uneasiness and fætor in the limb obliged me to dress the wound. There was then a very great discharge of good matter; I ordered him the bark, and a more nourishing diet. From
this

this time he lost that quickness of his pulse, and that irritability before mentioned ; his limb, below the ligature, about this time became relaxed, particularly the tumour in the ham ; the size of the whole limb was perceptibly less, and his appetite returned ; but the discharge remaining very considerable, he continued to take the bark and opium, and care was taken to obviate costiveness.

On the eighth of September, that is, on the seventeenth day from the operation, the ligature, stick, and lint came all away together, without the least pain or force ; so that a total solution of the continuity of the artery must have taken place. The limb, at this time, measured two inches less in circumference than it did before the operation. Embrocations and a moderately-tight bandage of flannel were daily used from the toe to the wound.

From the time the ligature came away, the discharge gradually lessened, and in the course of the month the wound was nearly healed ; but it then putting on an ulcerating appearance, and soon after spreading cutaneously over a considerable portion of the thigh, I conceived that country air, and moderate exercise, might be highly beneficial to the patient. I
accordingly

accordingly procured him a lodging at Lambeth, where I occasionally attended him, and, in a months residence there, the whole ulcerated surface was intirely healed, and by gradual and moderate exertions he became able to work at his business as well as ever. I saw him about a week ago, and examined the limb, which was scarcely perceptibly larger than the other. The tumour in the ham, though much diminished, remains in a flaccid state, without the least pulsation or pain; and he tells me he can use it in every respect as well as ever he could in his life.

The comparative heat of the sound and of the diseased limb was carefully ascertained by means of a thermometer every evening*, for some days after the operation, and found to be as follows :

* On the evening of the day of the operation, the diseased limb was found to be some degrees colder than the other; but as the exact degree of heat was omitted to be noted at the time, it could not be inserted in the table. The bulb of the thermometer (Fahrenheit's) employed in these observations, was flat. It was applied each day on the ham and foot, and was continued for some minutes on those parts before the degree of heat could be satisfactorily obtained.

Days

Days after the Operation	Temperature of the sound Limb.		Temperature of the diseased Limb.	
	At the Ham.	At the Foot.	At the Ham.	At the Foot.
1st. ———	96°	96°	95°	92°
2d. ———	94°	93°	97°	94½°
3d. ———	94°	94°	99°	96°
4th. ———	95°	94°	99°	95°
5th. ———	94°	93°	98°	95°
6th. ———	95½°	94°	98°	96°

The temperature was thus taken for three weeks, and it was observed, that the diseased limb became gradually less warm, compared with the other ; and that at the end of that period both limbs became equal in heat.

CASE II.

Nicholas Tattershall, aged 37 years, was admitted into Guy's Hospital, under my care, on the 5th of June, 1793, for the cure of a large pulsating tumour, which occupied the whole of the hollow of the left ham, and appeared anteriorly in such a manner, as almost to surround the lower part of the thigh ; the leg and foot were also much enlarged and hard ; the knee retained its motion, though every exertion of it was attended with pain in the tumour. The patient himself ascribed the origin of his complaint

plaint to a severe blow from the helm in a storm at sea, which had disabled him for a fortnight; and after that he had frequently, he said, felt pain on any quick motion of the limb. It was about six weeks after the blow that he first discovered a small throbbing swelling in the ham, precisely at the place where he had so frequently felt the acute pain before mentioned; and this tumour had kept gradually increasing in size and hardness till the time I saw him, which included a space of fourteen months.

On carefully examining the tumour, and collecting the preceding account of it from the patient, I had no difficulty in pronouncing it to be an aneurism of the popliteal artery.

The patient being a very athletic strong man, I ordered fourteen ounces of blood to be taken from his arm; an aperient medicine to be given him twice a week; and the warm bath to be had recourse to every other day. I moreover put him upon an abstemious diet. By pursuing this treatment for three weeks, he was considerably lowered and relaxed, and consequently less liable to any high degree of inflammatory action; the tumour in the ham, however, and the general enlargement of the limb, remained much in the same state as at his admission.

Thinking him now in a favourable state for an operation, I proposed it to my colleagues in the hospital, Messrs. Lucas and Cooper, for whose opinions I entertain the highest respect. They intirely agreed with me in the necessity of an operation ; and as I had so recently succeeded in tying the artery in the middle of the thigh, I proposed that mode, to which they likewise assented, and they thought with me, that this was a very favourable case for such an operation. I accordingly performed it on the 24th of June, precisely in the same manner as in the preceding case ; with this difference, however, in the result, that two muscular branches of the artery were divided, and secured with the ligature and tenaculum before the main trunk was laid bare ; I then opened the fascia enveloping the femoral artery, and having passed a double ligature in an eyed probe with ease under it, applied the lint and stick as before ; and for the same reasons, which need not be here repeated, one ligature was drawn tight upon the artery, stick, and lint, and the other was placed about half an inch higher upon the artery than the other, and left loose in order to be tied in case of hæmorrhage.

The symptoms of inflammation were much milder than in the former case, probably owing to
the

the precautions which I had taken to lower the patient during three weeks before the operation; for where the urgency of a case does not make an operation immediately necessary for the preservation of the patient's life, I think it advisable, previously to this, as well as to most other capital operations, to reduce the patient to that state in which he is the least liable to suffer from subsequent inflammation.

On the sixth day after the operation, I found it necessary to dress the wound; the discharge was great, (but by no means equal in quantity to that in the former case) much less fætid, and the edges of the wound had a disposition to heal; but the ligature, of course, prevented them.

As a knowledge of the comparative temperature of the limb operated upon, with that of the sound one, the state of the patient's pulse, and of the atmospheric heat, were objects I conceived to be both useful and curious, I was anxious to have them accurately attended to. This task was readily undertaken by Mr. William Hall, of Gloucester, who was then a pupil at the hospital, and on whose accuracy I knew I could rely. The annexed table, which contains the result of his observations, may therefore
be

be depended on. As the atmospheric heat is perpetually varying, I thought we should arrive at a greater degree of exactness if we prevented the access of the common air to the bulb of the thermometer during the time of its application to the limb, by covering both limb and thermometer with flannel. This was carefully attended to every day, till both limbs shewed the same temperature, which they did in about a month.

After the first opening of the wound, it became necessary to dress it every day. On the fifth of July, the ligatures from the muscular arteries came away; and on the sixteenth, the ligature, stick, and lint came all away together, as in the foregoing case. I permitted the spare ligature to remain till the twenty-third, when conceiving that it occasioned irritation, and of course excited discharge, I withdrew it; from this time the discharge gradually diminished, and the wound was healed on the 28th of August. The swelling in the ham at this time was scarcely visible; the leg and foot were become of their natural size, and the patient used that limb as freely as the other. He was dismissed the hospital, and entered directly on board a ship of war.

TABLE.

Day of the Month.	Right Ham.	Left Ham.	Right Foot.	Left Foot.	Temperature of the Atmosphere.	Time of Day when the Observations were made.	Pulse at the wrist.
	Temp.	Temp.	Temp.	Temp.			
June 24	96 ⁰	95 ⁰	79 ⁰	78 ⁰		3 o'clock, P. M.	80
25	96	95	90	91		10 ——— P. M.	140
26	99	98	93	95		9 ¹ / ₂ ———	94
27	102	96	93	82		9 ¹ / ₂ ———	100
28	98	94	88	81	66 ⁰	10 ———	
29	101	97	94	91	70	9 ¹ / ₂ ———	105
30	99	96	93	90	72	9 ¹ / ₄ ———	92
July 1	99	95	91	81	67	10 ———	86
2	98	95	94	84 ¹ / ₂	67	9 ¹ / ₄ ———	72
3	99	97	93	88	69	9 ¹ / ₂ ———	74
4	98	97	95	90 ¹ / ₂	70	9 ¹ / ₂ ———	82
5	98 ¹ / ₂	97	95	93	69	10 ———	70
6	97	93	92	92	74	9 ¹ / ₂ ———	83
7	101	99	97 ¹ / ₂	99	79	9 ¹ / ₂ ———	88
8	100	98	97	97	81 ¹ / ₂	10 ———	84
9	99	96 ¹ / ₂	96	95	71	10 ———	74
10	98	97	94	93	70	10 ———	78
11	100	97	97 ¹ / ₄	96	75	10 ———	80
12	99	98	97	96	75	10 ———	84
13	99	98	95 ³ / ₄	95	70	10 ———	86
14	101	98	96 ¹ / ₂	94	74	10 ———	86
15	Ligatures came away.						
16							
17	100	97	98	96	75 ³ / ₄	10 ———	86
18	99	97	95	94	69	10 ———	74
19	97	96	90	82	68	10 ———	84
20	97	95	88	80	66	10 ———	72
21	94	92	93	89	75	8 ———	90
22	97 ¹ / ₄	97	94	93	73	8 ———	80
23	98	97	93	85	66	9 ¹ / ₂ ———	86
24	98	98	84	80	66 ¹ / ₂	8 ———	90
25	98	98	94	94	67	9 ¹ / ₂ ———	86

II. *An Account of the good Effects of Opium in the Case of a Person poisoned by Digitalis. Communicated in a Letter to Dr. Simmons, by Thomas Beddoes, M.D.*

THE following case may perhaps be instructive to practitioners the first time they meet with a difficulty of the same kind.

A person, much emaciated and enfeebled, and labouring under anasarca and hydrothorax, took, by mistake, from two to four doses of an infusion of digitalis, more than were ordered for him. He had nausea during a considerable part of Tuesday night, which, by 10 o'clock on Wednesday morning, had increased so much, that every five or ten minutes he threw up a small quantity of bile, with the most dreadful retchings that can be imagined.

I had once, while I was a student of medicine, seen a much stronger patient destroyed by digitalis ; but the practice of the physician who had the management of the case was exceedingly feeble and fluctuating. He only admi-

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nistered

nistered some slight opiates, a little port wine, and effervescing draughts.

From the weakness of my patient, and the terrible effects always produced by digitalis, when improperly administered, I entertained very slight hopes of his recovery. I resolved, however, to attempt something towards his relief. For a short time I hesitated between opium and brisk emetics, (of white vitriol and mustard seed, for instance) which last, I hoped, might change the action of the stomach and liver, induced by the digitalis. I determined in favour of opium, of which I ordered three grains to be given at two doses; one immediately, and the other at the end of an hour; and afterwards fifteen drops of tincture of opium, every hour, in port wine, till the patient should fall asleep.

He dosed a good deal in the evening, and the vomitings had become less frequent by Thursday morning, occurring never oftener than once in half an hour, and sometimes only every hour and a half. The patient slept between each fit of sickness, and always awaked with nausea.

I gave him now sixty drops of tinct. opii by clyster, and three doses of 8 grains of pulv. Ipecac. comp. made into pills with extract. cicut.

to

to be taken at the interval of two hours between each dose, and ordered the clyster to be repeated in the evening.

During the night he perspired copiously, always awaking sick; the sicknesses more infrequent, but sometimes attended with singultus.

On Friday he ceased to vomit bile; and as he seemed entirely under the influence of opium, no medicines were prescribed on that day.

Saturday—he had drank toast and water during the night, which agreed well with his stomach. He had no sickness this day; he had been able to lie down ever since Wednesday, which he had been utterly unable to do before, and his feet only swelled a little towards night. He now began to eat with a very keen appetite, and drank almost half a bottle of wine a day; he had before led a very abstemious life. The bark in substance, with aromatics, was ordered for him, and he took about half an ounce every other day, for four times. The swelling of his legs, towards night, went off, and he has now, for some time, been perfectly well.

This case shows that opiates may be freely administered to a person poisoned by digitalis. I dare not draw any bolder conclusion from a

single case, but I would pursue the same plan of treatment under a similar emergency.

P.S. The pulse did not come down below sixty ; perhaps the opium counteracted the effect of the digitalis.

Bristol Hot Wells,
July 14, 1793.

III. *Some Observations on the Diseases that occurred on Board the Ship Europá, in the Service of the Hon. East India Company, during a Voyage from England to and from Madras and Bengal; by Mr. John Watfon, late Surgeon of the said Ship, and now Surgeon at Wellingborough, in Northamptonshire. Communicated to Dr. Simmons, by John Lorimer, M.D. Fellow of the Royal College of Physicians of Edinburgh, Physician to the Army, and to the Hon. East India Company.*

THE diseases which prevail in the beginning of Southern voyages, have been so often

often pointed out, that I should have thought it quite unnecessary to offer any observations on the subject, if we had met only with the common predisposing causes to combat with; but this, I have great reason to believe, was not our case.

A fever, which we carried out with us, joined its influence to the common inflammatory fever, which is almost always met with upon approaching a warm latitude in a crowded ship, and I believe was the chief cause of our continuing a sickly ship during the voyage. The case I allude to, as the cause of this mischief, is that of Samuel Hall, one of the ship's company, who had been ill some days before we left Gravesend *, with symptoms of fever, for which, in the beginning, he had little medical assistance. When I first saw him, which was not till about the tenth day from the commencement of the disease, he had a quick small pulse, with costiveness; a dry and parched tongue; hot and dry skin; and nausea. This man recovered, but continued, for several weeks, in a state of convalescence; and, during this

* The Europa sailed from Gravesend in January, 1792 and returned to England in April, 1793.

time, a similar fever attacked every man in the birth he was in, and it was very observable, that wherever it spread, the whole of the birth or mess, in which it made its appearance, were more or less affected with it. We were now approaching the line, and with nearly two hundred recruits on board, (all of them young men, unaccustomed to hot weather, and, in general, of plethoric habits) could not expect to be free from the complaints which usually occur in such latitudes, and more especially in a crowded ship.

A fever began to spread itself among them, attended with the usual symptoms; viz. an increased action of the heart and arterial system, great thirst, nausea, a hot dry skin, and, generally, costiveness.

This disease, in the first instances, easily yielded to the common antiphlogistic plan; but as we advanced, I found, to my great mortification, that our number of sick continued to increase; and that the fever, which at first had been merely inflammatory, now put on the appearance of a remittent, and was clearly epidemic. The recruits, from their situation on the orlop deck, were more affected than the ship's
company,

company, who breathed a purer air, though the latter by no means escaped its effects*.

To render this situation more tolerable, as many as could be accommodated were brought upon the gun deck, where a platform was erected for them, and every mode that could be devised to remove the foul air from below, was made use of. Cleanliness, of course, was the first step; and the next was, to dry up those hot moist vapours, which are allowed to be so baneful, not only to the sick, but even to the most robust and healthy. Fumigations, and washing with vinegar, were daily made use of; but the means I principally depended on, and which had the desired effect, consisted in having stoves on the lower deck, that were gradually moved fore and aft, and occasionally sprinkled with nitre. The fire had the good effect of drying up the moist vapours,

* On the voyage Outwards, the ship's company consisted of 103; of these, 86 were sick, and only one died; This death was in consequence of a fall. The recruits and passengers from England were 158, to which were afterwards added, from Madras to Bengal, 270 more, making in the whole 428; and of these, 264 were on the sick list, but only one of them died.

and the nitre supplied the sick with good air. For a hint upon this subject, I am obliged to Dr. Lorimer, to whom, I am sure, it will give pleasure to be informed that it was attended with very salutary effects.

The fever, as I have before observed, changed its type, as we advanced to the southward. Its general mode of attack was with rigors, head-ach, giddiness, nausea, and vomiting of bile; a quick but not a hard pulse, sometimes fluttering and unequal; great pain in the loins, with lassitude; a dry parched skin; eyes full, heavy, and yellow; and great thirst. On the first attack I ordered some of the antimonial emetic mixture* to be given; and I observed, that, in general, the patient was relieved by it, whether a vomiting of bile was the consequence or not, for that was not always the case. And I conceived, that some irritating matter (which perhaps had been swallowed with the saliva, and caused the nausea) was removed by the vomiting. An aperient antimonial mixture† was then

* *Mistura Antimonialis Emetica.*

R. Antimonii Tartarizati, gr. xvj

Aquæ Puræ, ℥i. M.

† See the note in page 32.

given,

given, until it had operated by stool, by which time, generally speaking, a gentle perspiration had taken place, and then the bark was immediately administered in as large doses as the stomach would bear. The very early exhibition of this valuable medicine, I think, never had a fairer trial, than I had an opportunity of giving it; and the success was equal to my most sanguine expectations, for in no one case did it fail, although I had, at one period of the voyage, upwards of seventy patients making use of it, and that for a considerable length of time, having had a constant succession of them. One patient only died, viz. J. Thompson; but even in this instance the failure, I am of opinion, ought not to be ascribed to the bark. The case itself was attended with singular circumstances, and as it ended fatally, I have transcribed it from my diary, and shall insert it at the end of my paper*, with the addition of one of the successful cases†, in order to give a more perfect idea of the nature of the fever.

If we, for a moment, consider the single circumstance of so many people confined in a

* See Case I. page 38.

† See Case II. page 41.

small place with fevers, it will not appear extraordinary that one should die, but that so many should recover; for during our passage to Madrafs, three hundred and fifty persons were at different times affected.

In general, the bark was given within thirty-six hours after the first attack; very often in less, and seldom later than forty-eight hours. If the stomach retained the first two or three doses, (which were given hourly) it generally brought on a distinct remission; and in four or five days the patients were left in a convalescent state; and then the bark was administered (but in less frequent doses) with wine. To recover them from this convalescent state, required some attention; and their diet was regulated with as much care as possible; for although our powers were very limited, yet it was found that much might be done by attention, and that the different provisions which are allowed, might be so managed, as to render them much more conducive to health than the general mode of using them is, and, at the same time, quite as grateful. Salted provision, for men in their situation, was evidently very improper; but unless we could satisfy them with something else, it was impossible to prevent their using it. For this purpose,

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I ordered a soup to be made, by cutting up and boiling one piece of salt beef, which had been previously washed, in a great quantity of water, and afterwards thickening it with oatmeal and barley. This made a tolerably grateful and fresh soup; at least it gave so much the appearance of soup to the gruel, as to induce the patients to eat it with satisfaction; and I had the pleasure of seeing them recover by this kind of management.

The necessary attention to so many people, could not fail, as may be easily conceived, to take up the time of myself and assistant (Mr. Walker) very completely. There was, indeed, scarcely a moment in which one or both of us were not employed in visiting the sick, in administering medicines to them, or in attending to other duties equally necessary. By other duties, I mean the attending to the execution of every plan which could be conducive to cleanliness, good order, and a free circulation of good air; for I cannot help considering these as the first and great causes of health, or disease, on board a ship, and without them medicine will avail but little. These avocations, as I have just now observed, so completely employed us, that

that it was impossible to be very minute in each day's report. Any material alteration was, indeed, noticed in the diary ; but in general, only the state of the fever, and medicine given, were noted. Both myself, and Mr. Walker (whose great assiduity and attention to the sick I shall ever remember) frequently felt the effects of the fever ; for my own part, I never, for some time, came up from visiting them, that I did not experience headach and a quickened pulse. The only precautions I made use of, consisted in keeping my stomach and bowels clear, and in taking occasionally a little bark. By these means I lived, as it were, in the midst of fever for three months, without experiencing any other effects of it than those I have just now mentioned ; and Mr. Walker, who adopted a similar plan, was equally fortunate.

We stopped at St. Jago, one of the Cape de Verd islands, with the hopes of procuring a supply of fruit and other refreshment ; but here we met with a disappointment, owing to a drought which had prevailed in the island during three or four seasons, so that we left it without deriving much advantage from our visit.

From thence we proceeded to Madras, without

out stopping any where, and had rather a tedious passage; the fever gaining ground in point of numbers all the time, but without being attended with any fatal consequence, except in the single case already related.

In the month of June, (at the latter end of which we arrived at Madrafs) several of our convalescents were attacked with scurvy, but not in any very material degree; the very few antiscorbutics we had, were made use of, and the disease was kept under till our arrival, when the sick were all sent ashore, and remained there till the 18th of July, when they again embarked for Bengal, with a detachment of His Majesty's 76th regiment.

During our stay at Madrafs, every means were made use of to remove, if possible, disease from the ship, by washing and fumigating every part of her. But our ship's company still continued sickly, so that on our arrival at Diamond harbour, the sick list was upwards of twenty. The unhealthy situation of this place is well known; but the hospital, though placed on so unhealthy a spot, has all the advantages that could be given to it. It is raised considerably, and stands upon arches; and the ground
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near it is drained as much as possible ; but still it is a marshy situation, and the patients cannot fail to be affected by the low swampy grounds which surround it for some miles.

Notwithstanding it was not so eligible a place as could be wished, it was thought more advisable to have our sick there than in the ship, for two reasons ; first, for the sake of separating the sick from the healthy ; and secondly, to give an opportunity of effectually cleaning the ship. Those who were removed from the ship to the hospital, (which at this time was empty, so that we could give them large accommodation) very soon benefited by the change ; others, who were taken ill whilst we remained there, were not so fortunate, as their complaints were in general aggravated by their intemperance. Their principal complaints were fevers of the remittent or marsh kind, attended with bilious vomiting and purging, and great tendency to dysentery. In most of these cases there was a greater or less tendency to delirium, in proportion as the patients were more or less of a plethoric habit. In several of these the pulse was so full and hard, that I should have been induced to take some blood from them,

had I not seen the ill effects of it, even in very small quantities, during a former voyage, under similar circumstances. In general, the early exhibition of the bark was very effectual, provided proper attention was paid to the state of the stomach and bowels. The aperient antimonial mixture * was what I principally made use of to clear the stomach and bowels, and in general it had the good effect of doing both, and, at the same time, excited a gentle diaphoresis; the bark was then given freely, but, I observed, if it had not a good effect in a few days, the disease became obstinate, and generally ended in visceral obstruction; to remove which it was necessary to use mercury, which seldom failed to produce the desired effect. These cases were also frequently caused by relapses, in consequence of those irregularities which it is impossible to prevent seamen committing.

In the month of September, dysenteries, accompanied with fever, were frequent. In many of these cases, also, after proper evacuations, the bark was given freely. In some other cases of dysentery, I found the use of diapho-

* See the note in page 32.

retics very efficacious. This mode of treatment consisted in giving suitable doses of the antimonial aperient mixture* during the day, which sometimes excited vomiting, but always caused copious stools, and generally brought on a gentle diaphoresis; this was encouraged by warm diluting liquors, and in the evening a pill was given, composed of one grain of opium, and gr. $\frac{1}{2}$ of antimon. tartarifat. In the morning the mixture was again had recourse to, and this plan was continued till the bowels were relieved, and the stools were become more natural, after which the antimonial opiate only was given.

Upon leaving Bengal, to return to Europe, our complaints were principally intermitting fevers, the remains of the marsh fever, which had taken that type; dysenteries; visceral obstructions; and inflammations, principally of the

* *Mistura Antimonialis Aperiens.*

R \bar{x} . Antimonii Tartarifati, gr. ij.

Mannæ, ℥ss.

Cremor. Tart. ℥ij.

Kali Tartarifati, ℥iij.

Spir. Æther. Nitr. ℥ij.

Aquæ Puræ, ℥ss. M.

liver,

liver, but often of the spleen and mesenteric glands.

Every opportunity I have had of observing the diseases of hot climates, confirms me in the opinion I have long held, in common with many other medical men, that the great source of health or disease, in hot climates, is centered in the natural or diseased condition of the liver; and that every chronic disease arises, in a considerable degree, from some defect of that viscus. In many acute disorders, also, this organ has its share; and in every kind of sickness, whether local or general, that is peculiar to hot climates, it is material to examine it; for no perfect cure, I am persuaded, can be made, or a relapse prevented, without having a strict eye to it. Fluxes are frequently caused by obstructions of this viscus, and however they may be palliated, can never be cured, without first removing the source of the disease, in the liver, which, I believe, is only to be done by mercury.

In our voyage outwards, several of our men had frequent relapses of fever, attended at times with a flux, which I never could totally remove, till I joined mercury with the bark. This proved efficacious in promoting good secretions,

and consequently more natural stools; and the fever afterwards gave no trouble. In all those patients I found the urine much affected, as, indeed, it is in all cases where bile prevails.

A long-continued use of the bark has been said to occasion these complaints; but, I think, with great injustice. It is certain, that we cannot remove the cause of the fever or flux by means of the bark alone; but in the many cases in which I have given it, combined with mercury, I never could perceive any ill effect from it; on the contrary, the disease has yielded to their united powers, and I have thought that the patient was less reduced, than by using mercury alone.

In fluxes only, proceeding from obstructed liver, the bark will seldom be necessary; but in such cases, if there be a disposition to fever, it will generally be found useful, more particularly so if given a day or two before the spring tides; for at those periods the disposition to fever will always be found to increase, and considerable advantage will arise from attending to this circumstance. I experienced this, not only whilst we were lying in Diamond harbour, but during the whole passage from Bengal to the Cape of Good Hope.

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As we advanced to the Southward, the scurvy began to make its appearance on board, more particularly among the convalescent, and those who had lately recovered from fevers.

If we reflect a moment upon a diet so deprived of nutritious powers, as salt beef and biscuits, with a small allowance of water, we cannot be at a loss to account how easily such a disease as the scurvy might arise in the habit, even of those who had before enjoyed health, much more so of those whose blood had been impoverished by disease. And here I cannot but lament, that there is not a more liberal allowance of those things, which have been found to be so beneficial in counteracting the effects of this dreadful disease; for 'as the causes, before mentioned, are not the only pre-disposing ones, but are much assisted by a moist cold air, it naturally follows, that upon a change of air we have not so much to combat with.

Instances I have repeatedly seen, where the scurvy has attacked numbers in a ship going round the Cape of Good Hope; but upon standing to the Northward, and having a clear dry air, with strict attention to their diet, cleanliness and exercise, and giving as largely of the antiscorbutic provisions as could be al-

lowed, the disease has been removed. And when it is considered, that by proper management it would be attended with very little, if any, additional expence, to put on board a sufficient quantity of such provisions, it leads me to hope, that it is only necessary to point them out, in order to their being adopted. The known humanity and liberality of the owners in general, warrant such a supposition.

If they would take the trouble of examining any of their surgeons upon this subject, who have been long enough in the service to experience the want and to see the utility of these things, I doubt not but such regulations would take place as would be very gratifying to a humane mind, and beneficial to the service in general.

With respect to the mode adopted for the relief of those who were affected with this complaint, I have only to observe, that a diet was formed as void of putrescent things as possible. They had plenty of acidulated liquors, and were recommended to use as much exercise as possible. The only alarming symptom was a dyspnoea, which many of them were affected with, and which I found was greatly relieved by camphor, given in the form of a bolus. This was almost
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the only medicine I gave them; it generally caused a gentle perspiration, and relieved their breathing.

Upon our arrival at the Cape of Good Hope, on our voyage homewards, the sick were plentifully supplied with vegetables and soup, which soon recovered them. A few of them remained in a convalescent state for a little time; but the very ample allowance of fresh provisions, which was served out for a considerable time afterwards, removed every appearance of scurvy, and we became at length a healthy ship; so that after we left St. Helena, we suffered very little inconvenience from disease.

We were so fortunate as to meet with few accidents that required surgical assistance; and those we did meet with were attended with no circumstances worth relating; therefore I have not thought it necessary to mention them in this brief account of the diseases we had to encounter with.

CASE I.

May 24th. John Thomson, aged thirty years, was attacked with symptoms of fever, viz. a quick full pulse; giddiness; great headach; nausea and vomiting; heat and dryness of the skin, and great thirst. He was directed to take the emetic antimonial mixture*.

25. The emetic brought up much bile; the headach was now less violent; body costive; other febrile symptoms as yesterday. He was ordered to take of the aperient antimonial mixture† every two hours, till a stool should be procured.

26. Symptoms as yesterday. Medicines repeated.

27. Fever continued, with costiveness. The mixture was repeated, and a purgative clyster administered. Stools being procured by these means, recourse was had to the following mixture, of which, from an ounce to an ounce and a half, was given every hour.

* See page 24. † See page 32.

R. Pulv.

R. Pulv. Cort. Peruvian. ℥iiss.

Tincturæ ejusdem ℥iij.

Aquæ Puræ, ℥ij. M.

28. A slight remission; pulse better; body natural. The bark mixture was continued.

29. He was free from fever all night, and continued the use of the bark till about four o'clock, P. M. when a sudden prostration of strength took place; the pupils of the eyes were much dilated, and he appeared comatose; but his pulse continued good, and he perspired freely. Towards midnight, however, his pulse sunk considerably. A blister was applied between his shoulders.

30. He continued comatose, but seemed at times sensible; refused every thing offered to him; his pulse was rather quicker; the blister rose.

June 1. He appeared to be more sensible, but his pulse was quick and low. He took liberally of a camphorated mixture, decoction of bark, and Madeira wine.

2. He was much the same as yesterday. The same plan of treatment was continued.

3. The symptoms, in general, were worse; he had taken very little medicine during the

night, and swallowed what he did with difficulty. Took his medicines and Madeira wine alternately; his extremities were cold; sinapisms were applied to the feet.

4th, 5th, and 6th. No material alteration.

7. Continued in the same state. As he had not had a stool for some days, an enema was given, and his medicines and wine were ordered to be continued.

8. The enema procured several copious and very fetid stools. He appeared more sensible; took his medicines and wine in the night.

9th and 10th. On each of these days was free from fever, but continued the use of his medicines.

11. In the same state; refused his medicines.

12. Very low, but appeared more sensible; refused every thing that was offered to him.

13. Refused his medicines, but took wine frequently; some livid blotches appeared over the trochanter major, os sacrum, and lower vertebræ lumborum. Had a very fetid stool this morning.

14. Pulse very feeble.

15. Pulse continued to sink all night, and he expired about four, A.M.

In this case the bark was not given quite so early as in the generality of the other cases, owing to an obstinate costiveness during the first three days of the fever ; but when it was given, it appeared to have a good effect. I am unable to account for the sudden change in this case, at a time when I was beginning to flatter myself that the patient was out of danger. Had this change taken place sooner, it might by some, perhaps, have been imputed to the evacuations by stool, which were rather copious, but they had taken place two days before, and the patient had been free from fever that day, and had a tolerable pulse ; but from the moment the fatal alteration commenced, the pulse began to sink, and continued to do so till he expired.

CASE II.

April 11, 1792. Lat. 13. 52. S. Long. 30. 46. W. James Armand, aged twenty years, and rather of a full habit, was taken with the usual train of febrile symptoms, as headach, great pain in his loins, and nausea. He was ordered an antimonial emetic.

12. The

12. The emetic operated well. The symptoms of fever continued. Four grains of pulv. antim. were directed to be given every two hours.

13. The medicine had operated both upwards and downwards. The nausea and febrile symptoms were as before. The antimonial was repeated, and after it had operated, the bark mixture was given frequently.

14. The febrile symptoms were abated. The use of the bark was continued.

15. He had an increase of fever in the night. The bark was continued.

16. He had less fever. The same medicine was continued.

17. The symptoms were about the same as yesterday. He continued the use of the bark.

18. He was free from fever. The bark was continued.

19. He had a slight return of headach, with nausea, and took some of the aperient antimonial mixture.

20. The antimonial brought up much bile, but procured no stool. He had an exacerbation of fever in the evening. The bark mixture was repeated frequently.

21. He had less fever. The use of the bark was continued.

22. Symp-

22. Symptoms the same as yesterday, till the evening, when he had a return of sickness and fever. The antimonial aperient mixture was ordered to be repeated on the morning of the 23d.

24. The medicine had operated freely. He had a remission this morning, and continued to take the bark mixture frequently.

25. He had some fever in the night. The same medicine was continued.

26. He was free from fever.

From this time to the 30th, he continued to take the bark with wine, and perfectly recovered.

In this case nothing particular occurred different from the general run of fevers, which we had at this time, except a greater disposition to bile, than I generally met with. This made it necessary to continue the antimonials longer, and even to recur to them after giving the bark.

Wellingborough,

July 1, 1793.

IV. *Case of a compound Dislocation of the Tibia and Fibula, accompanied with a Fracture and Loss of a considerable Portion of the Astragalus, and likewise with a Fracture of the Thigh Bone; with Remarks. By Mr. James Rumfey, Surgeon at Amersham in Buckinghamshire.*

ON the 21st of June, 1792, Mr. Tolson, aged forty years, a reputable tradesman in New Bond Street, Westminster, was thrown from a curricule on Gerrard's-Cross Common, eight miles from this place, in consequence of the horses taking fright, and drawing the carriage with great velocity against a tree. The injury he received from this accident consisted in a compound dislocation of the tibia and fibula at the outer angle of the left leg, with a fracture of the astragalus, (the superior half of which was attached to the dislocated bones of the leg) and likewise (though, as we shall see, not immediately noticed) a simple fracture of the os femoris on the same side. He was immediately conveyed to a friend's house on the common, where he had the advantage of an airy, healthy situation, with every kind domestic attention the family could administer.

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I saw him about two hours after the accident, and found the bones protruding at the ankle through a very large wound, with the foot turned inwards and upwards; and the integuments, beneath the wound, exceedingly confined by the dislocated bones, which descended nearly to the bottom of the foot. A considerable hæmorrhage had taken place, but was stopped by the spontaneous contraction of the lacerated vessels.

From such a formidable accident in so large a joint, there appeared very little probability of the patient's recovery, without immediate amputation. I therefore requested that a consultation with some other surgeons might be expeditiously held on the case, and expresses for this purpose were accordingly sent to Mr. Pearson, surgeon in London; and to my brother, Mr. Henry Rumsey, surgeon at Chesham, in this county. While I was waiting for their arrival, the patient requested me to examine his thigh, which till then he had not particularly noticed, when I plainly discovered an oblique fracture of the os femoris, at its superior part. This additional evil appeared to me a great obstacle to an amputation.

My brother, when he arrived, being of a similar opinion, I attempted to reduce the fractured dislocated joint into its proper situation.

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This I found very difficult to effect, without first separating that part of the astragalus which was pendulous to the tibia, having its capsular ligament lacerated one half way round the joint *; I therefore removed it without hesitation, being persuaded, that if it had been practicable to reduce it into its original situation, so large and moveable a portion of bone would have been a source of pain and irritation, and have rendered the cure more difficult and uncertain.

I then divided that portion of the integuments of the foot which was confined by the protruded end of the tibia, which enabled me with ease to reduce it and the fibula into their proper situation. I applied some dossils of lint, dipped in tincture of opium, to the wound, and covered the whole with a poultice of stale beer and oatmeal. We now reduced the fractured fe-

* This portion of the astragalus consists of the broad smooth head by which it is articulated to the tibia; of almost the whole of the inner and outer sides of this head by which it moves on the inner and outer malleoli; and of about the upper half of the posterior cavity on its under surface, by which it is united to the os calcis; so that the bone was divided nearly horizontally, and the part left behind consists of the lower half of the last-mentioned cavity, and of the whole of the other or anterior cavity which connects it with the os calcis; and of the anterior portion or process by which it is articulated to the os naviculare.

mur,

mur, and placed the limb in the bent position, expecting that our greatest success would be in procuring a complete ankylosis, the failure of which, I concluded, would leave a useless foot. The under splinter was a firm excavated piece of deal, of the shape of the leg and foot, with a hole opposite the ankle.

Mr. Pearson arrived in the evening, and approved of the preceding treatment, giving it as his opinion that it would be safer to attempt the preservation of the limb, than to amputate under such complicated circumstances. The wound was concealed as much as possible from the external air, and the cataplasm renewed no oftener than the discharge rendered necessary.

22. The preceding night had been very painful, with delirium and vomitings; the pulse was full and frequent; I took away ten ounces of blood, and gave Kali Tartarizat. and Manna, in doses sufficient to procure stools. A common saline draught, with antimonial wine and tincture of opium, was given every four hours, and a fuller dose of tincture of opium at bed-time.

23. The vomiting continued; the ankle and thigh had been less painful through the night; the saline draughts were continued, but without

out the antimonial, on account of the vomiting. During this period the antiphlogistic regimen was strictly adhered to.

24. The night had been tolerable; the vomiting had ceased; the pulse was softer; the saline draughts were continued, with the opiate, at bed-time. This evening the leg was very painful.

25. He had had a pretty good night; a discharge from the wound now commenced, and the tension of the muscles of the thigh began to diminish.

26 and 27. The same treatment was continued. The discharge increased, and the tension of the thigh was much abated.

28. The ankle was much swelled and inflamed; I therefore exchanged the beer grounds in the cataplasm for the *Aq. Litharg. Acetat.* The patient had this day much pain in the bowels from flatulence; from which circumstance, and that of the discharge being very thin, it was judged expedient to vary his mode of living, and likewise his medicines.

29. He was allowed a small portion of animal food, some table beer, and some port wine; and he took the bark liberally, both in substance and decoction. This change of treatment agreed with him perfectly well. At this time I found it
 necessary

necessary to alter the position of the limb, on account of the pressure on the wound, occasioned by its laying in the bent position, and the pain it gave in turning to dress it, which, from the copious discharge, there was now a necessity of doing night and morning. I therefore placed it on the heel, using the common deal flexible splint, of the length of the limb, and confined it in a box, whose sides and lower end let down. The space between the sides of the box and the splint was filled with pieces of flannel. By these means, and the use of the eighteen-tail bandage, the dressings were applied with very little disturbance to the leg, whereby the patient escaped much pain: the upper end of the box under the ham was raised; which gave the muscles some degree of flexion, and, at the same time, was favourable to the discharge.

The foot having a tendency to fall inwards, and the end of the fibula to protrude through the wound, it required great attention to prevent the deformity the neglect of these circumstances might have occasioned. The mode of prevention I adopted, and which proved successful, consisted in employing a number of small deal wedges, about six inches long, two broad, and a quarter of an inch thick; as many of these as

were found sufficient were placed opposite the inside of the foot, between it and the side of the box; others in the same manner on the outside of the calf of the leg; by which means the limb was kept steady: and by placing the heel easy, and rather hollow, none of the usual evils arising from pressure on the heel occurred.

30, The bark agreed very well; the opiate was continued at bed-time; the discharge was great, but more purulent; the pulse was become softer and less frequent; and the urine, which hitherto had been clear and very high coloured, was now turbid: the pain and inflammation being much diminished, the cataplasm was discontinued, and the wound dressed with dry lint, with a pledget of *Cerat. Litharg. acet. c.* over it, and a moderate compression was made by means of the bandage. From this period the wound progressively mended; the discharge diminished; granulations formed; and the surrounding skin began to heal. The use of the bark and of the opiate was continued till the beginning of August. About the end of July the progress of the cure was retarded by matter, collected under the integuments above the inner ancle, which, on pressure, came out at the wound. After trying the effects of perma-
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nent pressure, for the prevention of this deposit, in vain, I made an incision into the cavity, and filled it with dry lint to produce inflammation on its internal surface, which perfectly consolidated it; and from this time the wound rapidly healed, and became perfectly cicatrised by the middle of September, without any exfoliation of bone, larger than the head of a pin, having taken place.

The fracture of the femur went on very well, excepting that the obliquity of it, with the impossibility of producing a permanent extension, on account of the leg, occasioned a degree of curvature, which it otherwise would not have had.

The limb gradually acquired strength; and it is a very remarkable fact, that the patient is now able to walk very well, with only the aid of a small stick, and even this assistance he will probably not require long. There is no ankylosis to render the ankle immovable; but a sufficient firmness has been produced in the surrounding parts, by the long-continued inflammation, to assist in the formation of an artificial joint, which possesses a degree of motion nearly equal to that of the natural one.

The result of this case affords an additional argument against immediate amputation in cases of bad compound fracture; a subject on which surgeons, eminent in their profession, have been much divided.

The impure air of London and other great cities, but more particularly of large hospitals in such situations, probably renders these accidents more generally fatal there than in the country; and the constitution of many patients is, no doubt, more endangered in cities, by the long-continued copious suppuration consequent to extensive injuries, than it would be by amputation; and cities being commonly the residence of the most eminent men, these circumstances may have occasioned some of them to lay it down as generally necessary to amputate in cases of bad compound fracture: but in the country I should ever attempt to save the limb, except in cases where the division of large blood vessels, or a considerable loss of the muscles, should call for immediate amputation. I believe that many of those cases which prove fatal without the operation, would have a similar termination if it were performed, and *vice versa*. The cause of their fatality seems oftentimes to depend on
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something unfavourable in the habit of body; and this renders it necessary for the surgeon to discover, as clearly as he can, the preceding state of his patient's health, and very studiously to watch the progress of each day in the early part of all formidable accidents, as this only can direct him in what degree he is to adopt, and how far continue, the relaxant, antiseptic, or tonic modes of treatment; as in cases of this kind, no one general rule of conduct will be equally successful.

The same attention will be necessary to be observed respecting the local treatment, that irritation and pain may be avoided as much as possible.

The position of the limb in compound fracture must depend on the situation of the wound. In simple fracture, during the process of swelling and inflammation, great advantage results from the bent position, which is certainly less painful, from the muscles being relaxed; but when the tension has entirely subsided, I confess I keep the fractured ends of the bones better in their place by the straight position; and the time of confinement being divided in the two situations, the patients generally bear it better; and when

the union is perfect, flexion may be again permitted with propriety.

Amerſham,

March 31, 1793.

V. *A Caſe of violent Diſtortion of the Foot, occaſioned by a Rotation of the Aſtragalus, in conſequence of a Fall, and accompanied with a Laceration of the Integuments at the outer Ankle, and Expoſure of a Portion of the Fibula. Communicated in a Letter to Dr. Simmons by Mr. William Guy, Surgeon at Chickeſter.*

IF any apology be neceſſary for my wiſhing to ſee the following hiſtory inſerted in the next Volume of Medical Faſts and Obſervations, I apprehend it is furniſhed by the circumſtance of two caſes of the ſame kind having happened in this neighbourhood, in both of which amputation was judged neceſſary, and performed:

I was deſired by a ſurgeon to viſit a young gentleman who had received a ſevere hurt in the foot, in conſequence of his horſe having reared

reared up and fallen on him; the injury appeared of such magnitude, that the surgeon had little doubt but that amputation would be necessary. I saw the patient in about four hours after the accident, during the whole of which time he had suffered excruciating pain; his left foot was wrenched round, so as to describe a quarter of a circle, in which position it remained, resting (as the patient lay on his back) on the great toe, and forming a right angle with the inner side of the tibia. The violent and sudden distortion of the foot was such, that the integuments were torn over the outer angle, leaving about two inches of the fibula exposed.

Though appearances were so formidable, there was reason to hope that the real injury sustained by the parts concerned, was not answerable to them: a violent distortion had happened, but there was no luxation; the astragalus, and consequently the foot, had only undergone a rotation; and the laceration was caused, not by any displacement of the fibula, but by the integuments being violently stretched and torn over the head of that bone.

Impressed with these ideas, we made a gentle extension of the foot, and replaced it without

the least difficulty in its natural situation; the integuments being thus relaxed, as readily returned over the head of the fibula, and the lips of the wound came nearly in contact; soft, easy dressings were applied, and the leg and foot were fomented with flannel cloths, wrung out of hot water, and laid on the limb, all motion being carefully avoided; some blood was drawn, an opiate administered, and the antiphlogistic regimen strictly enjoined. In a very short time the patient fell into a profound sleep, in which state he continued several hours; he awoke much refreshed and tolerably easy; no considerable pain or swelling ensued; at the end of the month he was able to ride on horseback, and with the aid of a stick could walk pretty well; and in less than three months after the accident he recovered the perfect use of the joint.

It will clearly appear to any one, on examining the skeleton, that the ligaments of the joint were not so much stretched in this case as in a luxation; and that the astragalus, when turned round as above described, is almost as well adapted to the cavity of the inferior extremity of the tibia, as when in its natural position; the head of the fibula covering the posterior instead of the lateral part of the astragalus, and the

the lower extremity of the inner ancle falling into a small depression of the anterior part of the same bone.

Chichester,

October 20, 1793.

VI. *Cases of the Urticaria or Nettle Rash, with Observations; by T. M. Winterbottom, M. D. Physician to the Settlement at Sierra Leone: communicated in a Letter to Robert Willan, M. D. Physician in London, and by him to Dr. Simmons.*

A Black woman, aged thirty-six years, strong and healthy, after having eaten of a fruit which she found in the woods, in form and size resembling a damson, and for which she mistook it, was next morning affected with a sense of uneasiness and listlessness over her whole body, accompanied with nausea and oppression at the præcordia; and with a sensation of creeping over the whole body, which was followed by a general tumefaction, especially of the face.

The

The nose was remarkably swollen, hot, itchy, and painful, particularly the *alæ nasi*; the upper lip was also much tumefied. She moreover complained much of a soreness in the throat, attended with a troublesome tickling and sense of constriction of the fauces, which rendered deglutition difficult. About the same time an eruption took place over the whole body, more especially on the neck, breast, and arms, of large red spots elevated above the skin, very hot, and intolerably itchy. On becoming warm in bed she felt as if stung all over with nettles; and the spots at that time appeared more numerous. The next morning she took a dose of *sal. cathart. amar.* after the operation of which the tumefaction of the body was entirely removed, and the affection of the throat was very much relieved.

The eruption was much diminished in the course of the day, but did not entirely disappear until three or four days after, upon taking a second dose of the salts. The itching continued troublesome for a week or two longer, and was always aggravated during the night.

Her husband, who had eaten of the same fruit, was similarly affected, except in feeling
but

but little forenefs of throat, and in having his face more fwoln, efpecially the lips.

A woman and child, whom I did not fee till after their recovery, were affected, according to their own report, in nearly the fame manner, from eating the fame kind of fruit; they recovered without any other medicine than a dofe of purging falts.

The tree which bears this fruit is, I believe, hitherto undefcribed; the fruit, when ripe, is not unlike a damfon, having a ftone within, being black, and of a fweetifh tafte. Its juice, which at firft is nearly colourlefs, gives a very durable black or dark-brown colour to linen.

An eruption fimilar to the above occurs from a variety of fubftances taken into the ftomach; it is commonly termed a furfeit, or by the vulgar in fome parts, poisoning. This may depend either upon an idiosyncracy with regard to certain articles of diet, as crabs, and fome other fhell fifh*; or it may arife from a mixture of
different

* A man was always affected with urticaria after eating crabs, whether boiled or in foup; he was affected thus even by the vapour which arofe from them; as alfo by taking the lap. cancr. Dr. Tode, from whom this is quoted (Med. chir;

different substances in the stomach, producing a noxious compound, though any of them singly would be harmless. Of this, Salmon, taken along with milk, affords an example.

Under the former head, perhaps nothing is more curious than the effects of the vegetable bitter. I have myself been twice violently affected by eating the sweet Almond : the first time, within a few hours after eating this fruit, though in no great quantity, I was seized with slight nausea, uneasiness in the stomach and bowels, without any fixed pain; great restlessness and increased heat. These symptoms were soon followed by an oedematous swelling of the face, especially of the lips and nose, which were extremely hot and itchy. There was, at the same time, an uneasy tickling sensation in the throat, which excited a troublesome cough and a constriction of the fauces, which seemed to threaten suffocation. The tongue likewise became enlarged and stiff, causing a slowness and faltering in the speech. Soon after going to bed, an

chir. bibl.) observes that he is himself frequently, though not always, affected with a slight urticaria after eating crab soup. — A woman by eating strawberries was constantly affected with urticaria. See Vogel's *Handbuch der Pract. Arzneywissenschaft*, vol. 3, p. 277.

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eruption took place over the whole body, of spots nearly as large as a sixpence, of a dead white colour, a little elevated above the skin like the wheals produced by the sting of a nettle, and intolerably itchy. In their interstices the skin was of a high red colour; the whole body was also tumefied, though in no great degree. These symptoms continued during the greater part of the night, but gradually abated towards morning, upon the breaking out of a gentle perspiration which was encouraged by warm diluents; the next day, not the least vestige of the complaint remained.

The second time this affection occurred, the appearances were nearly the same, except that they began a few hours later than in the first instance — The eruption also continued the greater part of the ensuing day, and then gradually declined. From eating the blâched Almond I feel no inconvenience, but have never ventured since to eat them in their un-blâched state.

During my residence in Edinburgh, a patient was received into the clinical ward affected nearly in the manner above described; I shall transcribe his case from the clinical reports taken at the time.

“ Nov.

“ Nov. 19, 1787. Alex. Robertson, aged 18,
 “ a Labourer; has a colourless puffy swelling over
 “ his whole body, but more especially over his
 “ head, upper extremities and thighs. The
 “ swelling is pretty distinctly seen and felt upon
 “ the forehead, which pits upon pressure; the
 “ palpebræ and upper lip are likewise a little
 “ tumefied. The parts chiefly affected are fre-
 “ quently attacked with almost intolerable itchi-
 “ ness, and when scratched have an appearance
 “ as if stung with nettles—pulse natural; appe-
 “ tite good; body regular. Two or three days
 “ previous to these complaints he was, at dif-
 “ ferent times, suddenly attacked with great
 “ vertigo, and on the 18th, first observed the
 “ swelling and itchiness—He attributes his com-
 “ plaints to sudden alternations of heat and cold.
 “ Has used no Medicines.

“ 20. He took a dose of Pulv. e. Jalap. co.
 “ which did not operate — on the 21st having
 “ had only one natural stool, the purgative was
 “ repeated. The swelling was nearly gone,
 “ but the itching continued—

“ 22. Had three motions from the physic:—
 “ the itching had ceased on the head, and was easier
 “ on the trunk of the body; but now began

“ to affect the lower extremities—He was ordered to employ the warm bath, and afterwards to take Pulv. Dover. gr. x with a diaphoretic Julep occasionally.

“ 23. He had sweated properly :—his voice and countenance were natural—the itching was gone from all parts but the legs and feet: the Julep was directed to be continued.

“ 24. Some itching still remained about the legs and thighs; he was ordered to take next day a decoction of Tamarinds with Senna.

“ 25. The itching was almost gone—

“ On the 26th he left the house, cured.”

Dr. Gregory, in his clinical lectures, mentioning this case, said he suspected it might have arisen from something disagreeable to the patient's stomach of the nature of the vegetable Bitter—The Doctor also observed that he had himself been subject to a similar complaint from eating Almonds; that he had a violent attack of fever, swelling of the body, and a copious eruption on the skin, attended with a loss of voice and coldness of the extremities, which, however, went off the next day — Nearly the same symptoms, he added, had occurred to him from eating a green cucumber with the skin upon it; and continued

four days, but were at length removed by a cathartic.

About two years before this period, Doctor Gregory had seen, he said, a patient affected in a similar way by drinking porter; he was seized with sickness, slight fever, head ach, and great itching over his body, occasioned probably by the bitter in the porter—The patient Robertson, whose case is related above, also said that he was taken ill soon after drinking some porter.

The above disease appears to me to belong to the genus *urticaria*. Authors have divided urticaria into an acute and a chronic species; the former has had various denominations, as *febris urticata*, *scarlatina urticata*, *purpura urticata*, *febris rubra pruriginosa* — Some Writers, however, seem to have confined the term *urticaria* wholly to the chronic kind*—These distinctions appear unnecessary if we reflect how difficult it is to account for the effects of stimuli upon different constitutions; and how variously the disease may be modified, either by the peculiar irritability of the patient; or by a greater or less degree of activity in the irritating matter taken into the stomach.—Besides, the term *febris urticata* is highly improper; for the symptoms which

* See Medical Transactions, vol. II.

occur in the acute, or febrile state, as it is called, are not those of fever, but merely of erethismus, being the consequences of a greater or less degree of irritation.

The *scarlatina*, *urticaria*, and *effera* have been considered, by some *, as diseases of a similar nature; but between scarlatina and the others, the difference is so striking that it need not be minutely pointed out—The distinction between *urticaria* and *effera* does not appear so obvious—Some have considered *effera* only as a chronic state of *urticaria*, but a much more essential distinction may be established between the two diseases—*Urticaria* seems always to be connected with an affection of the system, and of the stomach and primæ viæ in particular, whereas the *effera* appears to be merely a local affection of the skin unconnected with any disease of the constitution:

Many persons who have an irritable or delicate skin are liable, during the spring and summer seasons, to frequent eruptions on the arms, face and neck, commonly called heat-spots, resembling the stings of nettles, which observe no certain period of duration, but sometimes

* See Selle Rudimenta Pyretologiæ.

quickly disappear, and sometimes are very permanent. A lady of my acquaintance is always affected with an eruption of this kind when her skin is touched with the common wall flower. The bites of insects have considerable effect in producing a similar eruption on the skins of some persons, while others are little affected by them. Astruc says this *effera* is very common in Languedoc, but he considers it as the same with *urticaria*.

Those who account for the effects of the vegetable bitter, upon the supposition of its being carried into the blood before it exerts its action on the extreme vessels, afford little satisfaction to pathological inquirers. How can we, indeed, imagine that so small a portion of matter as is probably extracted from the skins of a few almonds, should, when mixed with the mass of circulating fluids, produce such powerful effects? It appears, therefore, more rational to conclude that the stomach is the part primarily affected; and that the eruption is only a consequence of the close connexion which subsists between this organ and the skin. That connexion is proved by a number of instances; I shall, however, adduce one more which is peculiar to the climate wherein I am at present situated.

situated. This is the *prickly heat*, a papulous eruption which appears chiefly on parts covered by the clothes. Strangers are generally most liable to it, though some never have it, and yet enjoy good health. Fair people are more affected by it than those of very dark complexions; yet I have sometimes seen it affect even black people. This eruption is generally considered as a mark of health; from what I have seen of it, I am rather inclined to consider it as indicating an active and healthy state of the stomach. The slightest indisposition or uneasiness of the stomach is commonly followed by a considerable abatement or total disappearance of the eruption; in such cases, a dose of bark, a glass of wine or any warm liquor, is frequently succeeded by a general tingling over the body, and a copious eruption of prickly heat; where the eruption is already out, it is often much increased and rendered more vivid by the same means.

It has often been supposed that bitters possess a narcotic quality; for which reason the gentian has been omitted in some of the foreign dispensaries. The long-continued use of bitters certainly tends to destroy the tone of the stomach and of the constitution; and thence produces

irregularities in the circulation, and more especially congestions in the head. The fatal effects ascribed to the Portland powder may be thus accounted for; at least with more probability than by the common hypothesis of a repulsion of gouty matter from the extremities, and its consequent deposition upon other parts, of which we have no proper evidence.

*Free Town,
Sierra Leone,
June 3, 1793.*

VII. *An Account of the Effects of Vitriolic Æther in a Case of spasmodic Affection of the Stomach; and in two Cases of Intermittent Fever. By Mr. William Davidson, Apothecary in London.*

IN the month of November, 1791, a young married lady, of a delicate habit, having undergone much fatigue, was seized with a violent spasm of the stomach, which came on immediately after dinner, every day, for eight days, and continued sometimes for one, and sometimes for two hours, without her finding any relief, although

although a variety of warm things were given to her for that purpose. On the 9th day she dined at my house, and was taken as usual. Having a high opinion of æther as an antispasmodic, I gave her a draught composed of a drachm of vitriolic æther, and simple peppermint water, desiring her to drink it quickly, which she did.

The moment it got into the stomach it gave a considerable shock, (if I may so express myself) to the whole constitution. She thought it very strong, and said I had nearly suffocated her; however, the pain went off immediately, and never returned after. *Quære*, was not this effect produced by the shock given to the common sensorium through the medium of the stomach, from which the distribution of nervous influence was disturbed, and a stop thereby put to the diseased action then existing?

Seeing such success from this medicine, and the commotion it excited in the body, I conceived it well adapted for answering one of the intentions expressed by the illustrious Whytt, in his Treatise on Nervous Diseases; and I resolved to put it in practice as soon as an opportunity should offer, which happened soon after, as will appear by the following case of a quartan

intermittent, which was speedily stopped by it. The passage alluded to in Dr. Whytt's work, being of great importance towards establishing a rational pathology of some nervous diseases, I shall beg leave to mention it. He says, page 221, (8vo edition) " And as an intermittent " agrees with epileptic and other convulsive " disorders, as to its cause, so its returning paroxysms, like theirs, may be often prevented " or weakened by raising, a short time before " the approach of the fit, an acute pain or any " great commotion in the body." And the practice appears very rational with a view to disturb or suspend the nervous influence. The latter is to be most earnestly wished for in the treatment of these complaints: for, if suspended only for a moment, there is great probability that the existing morbid action will either cease or be changed into a milder affection. But if this cannot be accomplished, we often gain our purpose by diverting the nervous influence into a new channel.

Case of a Quartan Intermittent cured by Æther.

Mrs. K—, aged about forty-six years, having lost her only child on the 30th of August, 1791, was so much affected, that she became very low and weak; and, towards the end of September, was seized with a severe quartan ague, which continued to return at regular periods, but for which she used no remedy until the 15th of January, 1792, when she applied to me. She was then in a feeble state, but had no particular symptom of visceral obstruction.

Having first cleared the *primæ viæ* by an emetic and a purgative medicine, I began to treat her in the usual way, by giving the bark and different tonics in the intervals of the fits, and endeavouring to shorten the paroxysms, when present, by the common methods.

This plan of treatment I pursued until the 5th of February, without any benefit as to the periodical returns, although her general health was better. Being now tired and disappointed, she would take no more medicine; and in this resolution she persisted until the 16th, when she

again solicited my assistance. She was now extremely weak and thin, and her ague had regularly continued.

Having been unsuccessful in my former attempts, I resolved to adopt Dr. Whytt's method of exciting a commotion in the system just before the approach of the fit. With this view I ordered an æther draught, similar to that given in the above case of spasm, to be taken when the least feeling of the fit should come on. Some minutes, however, elapsed after the accession of the cold fit before the draught was taken; which, notwithstanding, produced the desired effect. When taken into the stomach it gave her so considerable a shock, that she imagined some mistake had been made in preparing her medicines, and was therefore much frightened. The coldness went off immediately, and being succeeded by a pleasant sensation of warmth, without any fever or perspiration, she was in good spirits all the rest of the evening.

Fearing this one dose might not be sufficient, as the fit had commenced before the draught was taken, I requested she would take another at the time the next paroxysm was expected, whether it appeared or not. Accordingly, on
the

the 20th, perceiving (to use her own expression) her nails were becoming black, which she had found to be the constant precurrent symptom of a fit, she took her draught, which affected her still more than the former.

At first she seemed like to burst, (as she expressed herself) but soon after felt comfortable, and spent a very cheerful evening. Her ague disappeared from this time, nor has she had any return of it since. She took some tonic medicine twice a day for several days, and acquired fresh strength and spirits daily.

In the above case it is probable that no particular visceral obstruction existed, and that the disease originated from weakness of the nervous system, brought on by grief for the loss of her child; and might therefore be considered as a nervous disease that had become periodical, and as such was to be treated like epilepsy, and some others of that class; many of which might be successfully attacked on the above principle. That many intermittents are nervous, would appear probable from the great number of patients who are daily cured by frights, charms, accidents, or, in short, any thing which, for the moment, diverts or suspends the nervous influence, and thus breaks the habit of attack.

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In confirmation of this idea, I shall take the liberty to add a few more facts. A worthy baronet, whom I have the honour to attend, having been affected with an obstinate ague for eighteen or twenty months, for which he had tried the bark, given in the best manner, without effect, was determined to follow the hounds on the approach of the next fit, in hopes that the exercise might prevent it from coming on.

He made the attempt, and certainly succeeded; for in leaping a five-barred gate, his horse fell, by which accident he broke one of his collar bones, and his ague never appeared after. Here the violent shock to the constitution from the fall, and the symptomatic fever induced by the fracture, cured the intermittent; perhaps by stopping the habitual diseased action, and inducing another action, where the nervous influence was determined more firmly and steadily to a particular point.

Many patients have been cured by falling accidentally into a river on the accession of the cold fit. A large dose of laudanum has also stopped a fit; and a similar effect has been produced by a glass of brandy and hartshorn. I know a very respectable private gentleman, who has cured many agues by the following draught, of his own composing;

viz.

viz. brandy, strong vinegar, and water, of each, a wine-glass full, to be taken just before the fit. Every practitioner is more or less acquainted with facts of this kind ; and however mortifying it may be for professional men to hear, yet it is also well known that an ague, which has for months baffled the united efforts of talents and experience, has been often cured by some charm, or by great emotion of mind, excited by the sagacity of some good old lady on the approach of the fit. That the principle is rational, and consistent with the laws of the animal œconomy, will appear probable from observing the rules of the nervous influence, which cannot be directed to two points, at one and the same time, with any degree of steadiness or permanency.

Case of a Tertian Intermittent stopped by Æther.

Towards the end of February, 1793, a young man, about twenty-four years of age, of a delicate structure, and fair complexion, became feverish, and was persuaded by a medical friend to be bled. Immediately after the operation was performed, he grew weak, hysterical, and continued in a fainting state, more or less, during the remaining part of

of the day. The next morning, about eight o'clock, an intermittent, of the tertian type, made its appearance, and went through the usual stages. After proper attention had been paid to the state of the first passages, the bark was given every two hours in the absence of the fit. This plan, with the addition of a nourishing diet, and the occasional use of port wine and porter, was continued for four days, but with no good effect; and the case of Mrs. K— having occurred to my remembrance, I now thought of trying the same means of cure in this case.

Accordingly, on the 8th of March, I sent him the same æther draught, as had been given in the former cases, to be taken on the approach of the next paroxysm, which he expected the following morning. On the 9th he took his draught, exactly as the paroxysm was beginning, and it went off directly by a gentle moisture on the skin. Having proceeded with his bark for six days, gradually diminishing the frequency of exhibition, and having had no return of his ague, I left him seemingly in perfect health.

From the above cases it appears evident, that some intermittents may be cured by exciting
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the commotion recommended by the celebrated author above mentioned. It remains, therefore, with practitioners to ascertain what is the best medicine for answering this indication : Whether æther, electricity, a shock from the cold bath, or any particular impression on the mind, is the best ; or whether they ought not all to be adopted occasionally, and only varied according to the different constitutions affected, and the different states of each different patient ; and also, whether all kinds of agues can be cured or relieved in this way. I exhibited the æther twice to a patient labouring under an intermittent, who was much affected with different internal complaints, and where the kidneys did not perform their functions, without stopping the disease, although the fit was much shortened by the second dose. From this I suspect that the method above practised will not succeed when the disease is attended with visceral obstructions ; but that when the ague arises from debility, occasioned by grief, or whatever weakens the nervous system, from which habitual fits have been induced, the habit of attack may be stopped, and the disease cured as already mentioned.

But I presume the success, even in the latter cases,

cases, will depend much upon the commotion being excited as near as possible to the moment of attack. I have lately succeeded in one case of epilepsy, which was of many years standing, and had been induced by intense application of mind, by giving an æther draught on the approach of the fit, and pursuing a tonic plan in the intervals.

Queen Anne Street East,
October 10, 1793.

VIII. *An Account of the poisonous Effects of the Seeds of the Datura Stramonium Linn. By Mr. James Johnson, Surgeon at Lancaster.*

ON the 12th of November, 1789, about five o'clock in the afternoon, Miss S. of this town, aged twenty years, swallowed some of the seeds of the stramonium or thorn-apple. Three hours afterwards she began to be sick, and her mother gave her a mixture of flour of mustard and water to make her vomit, and it produced this effect several times. At eleven o'clock the
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same evening I visited her, and immediately suspected what she had been eating from the description her mother gave me of the plant, (the patient having destroyed all she had of it); and the next day I was convinced of its being the *datura stramonium*, by a fresh specimen of the plant, which was procured from the same place where the other had been gathered.

As she had vomited several times before I was called to her, I contented myself with administering a purgative medicine, which procured several stools. She passed, however, a restless night, complained of great pain of her stomach and left arm, fancied she saw objects that did not exist, and had repeatedly a sensation of a flashing light, which made her think that she saw it lighten.

After the operation of the purgative, she took repeatedly of an oily emulsion.

Nov. 14, As her sickness, and pain of her stomach, still continued, I gave her an emetic, of antim. tartar. and ipecacuanha, which brought off several of the seeds of the *stramonium*.

15. The sickness and uneasiness at her stomach still continuing, she repeated the purgative medicine, and it operated several times.

16. She had passed a much better night, and was free both of sickness and of the pain at her stomach:

17. As she now had no complaint but weakness, she was directed to take the Peruvian bark infused in port wine ; and when I saw her again on the 20th, she found herself quite recovered:

Of the instances of the poisonous effects of stramonium, recorded by different writers, those described by Dr. Rush *, Professor Lobstein †; and Dr. Fowler, seem to have the greatest affinity to the case I have related.

The subject of Dr. Rush's account was a girl between three and four years old. She had fever, delirium, tremor of her limbs, and a general eruption on her skin. The real cause of these symptoms not being suspected, purgative medicines, the warm bath, and cataplasms to the feet were employed, but without effect. At length it was discovered that she had swal-

* An Account of the Effects of the Stramonium or Thorn Apple. By Benjamin Rush, M. D. Professor of Chemistry in the College of Philadelphia.—See Transactions of the American Philosophical Society, Vol. I. p. 318:

† In an Appendix to a Dissertation de Vegetabilibus Venenatis Alsatiæ, by F. A. Guérin. 4to. Strasburgh, 1766:

lowed some of the seeds of the stramonium. She was now vomited with emetic tartar, but brought up only phlegm. Sweet oil, however, mixed with a little castor oil, brought away a great number of the seeds by stool. The relief this oily medicine gave her, occasioned it to be repeated every day for a week; but the tremor still continued, at times, in her hands, and she was blind and stupid. The pupils of her eyes were much dilated, and she caught at the bed-clothes, and every thing around her, like a person in the last stage of a fever.

Being persuaded that the oily mixture had evacuated all the seeds that were in the intestines, Dr. Rush suspected that her complaints were kept up by a few seeds retained in the stomach. He therefore gave her a larger dose of emetic tartar, which brought up eighty of the seeds; but the stupor and blindness still continuing, the emetic was again repeated, and brought up above twenty more of the seeds; after which all her complaints vanished.

Dr. Rush supposes, that in this case the effects of the poison would have been greater, if the seeds had been fresher; for they were, it seems, of the preceding year's growth, and were become dry and hard.

He adds, in a note, that Dr. Bond and Dr. Harris had informed him, that in a similar case they had experienced good effects from lemon juice, after the strongest vomits had failed to relieve the patient.

The case related by Dr. Lobstein was as follows:

Two children at Strasburgh, a brother and a sister, the former six, the latter nine years old, ate some seeds of the stramonium about five o'clock, P. M.

At nine the girl complained of lassitude, and went to bed. Her mother soon after finding her feverish, and talking in her sleep, concluded that she was about to have some eruptive disease, and gave her something warm to drink. She continued in this state till one o'clock in the morning, when the boy also, who had slept in another room with his father, was become extremely restless. At seven, A. M. when Dr. Lobstein first saw these children, they were both much convulsed; their faces and cheeks were swelled; their lips were of a deep red; their eye-lids swelled and closed: on separating the eye-lids, the pupils of the eyes were found to be much dilated; the eyes themselves were convulsed. Their bellies were tumid, but not hard.

hard. When they were loudly spoken to, or when any body touched them, their convulsions became more frequent and violent. In each of them the tongue was swelled and protruded out of the mouth; and their fauces were so constricted that respiration was performed with difficulty. By degrees the spasms became less violent, and their skin, from being intensely hot, became moist; their pulse was still quick, but softer. They now rejected every kind of liquid, and seemed to labour under hydrophobia; for on offering a cupful of drink to them, Dr. Lobstein found that the moment it touched their lips the spasms returned with great violence.

While he was endeavouring to ascertain the cause of these alarming symptoms, he accidentally observed, in the chamber, a portion of the plant which had occasioned the mischief. He now began, therefore, to excite vomiting; but no seeds of the stramonium were rejected. He was more successful, however, with clysters, which were repeatedly administered, to the number of twelve, and brought away seeds of the plant with the stools. The bellies of the patients now became less tumid; their respiration was easier; and the swelling of

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their

their faces subsided. Lemon juice, and likewise vinegar and water, were now administered to them.

At eleven, A. M. when Dr. Lobstein saw them a second time, he found the girl more quiet, but still at times convulsed. She drank freely of vinegar and water; her pulse was softer; she perspired considerably; the tumefaction of her belly had subsided; and she was free from delirium, but the pupils of her eyes were still dilated. The boy remained unrelieved.

At eight, P. M. the girl was sufficiently recovered to give her friends an account of the plant, the seeds of which she and her brother had eaten. She had got some refreshing sleep, but her pupils were still so dilated as not to contract on the approach of a candle.

The boy likewise now began to mend; and at eleven, P. M. opened his eyes and spoke to those about him. The next day they were both of them pretty well recovered.

Of these cases, from Dr. Lobstein, I have been induced to be the more particular in my account, as the Dissertation to which they are annexed is scarce; but, for the particulars of
Dr.

Dr. Fowler's cases, I shall content myself with referring to the collection in which they are published, as being a work pretty generally in the hands of medical readers in this country*.

From none of the facts hitherto published, relative to the poisonous effects of this plant, does it seem to be ascertained what quantity of the seeds may be swallowed without destroying life. Their effects, no doubt, will vary according to the soil and climate in which the plant is produced, and according to the greater or less degree of maturity to which the capsules have arrived.

In one of the two cases related by Dr. Fowler, the patient, a girl not quite six years old, is said to have swallowed three-fourths of the seeds of a fresh, ripe, middle-sized thorn-apple; and I have reason to think that my patient swallowed nearly as many seeds as were contained in one apple; but it would seem that in the East Indies these seeds are much more deleterious; for there, according to Dr. An-

* See Edin. Med. Comment. Vol. V. page 161.—References to other instances of the poisonous effects of the seeds of the plant in question, may be found in the late Professor Murray's *Apparatus Medicaminum*, 8vo. Gotting. 1776. Tom. I. p. 456, and in Dr. Woodville's *Medical Botany*, Vol. II. p. 338.

derfon *, the feeds of one thorn-apple are generally fufficient to induce immediate death.

Both my cafe and Dr. Ruff's fhew the utility of repeated and active emetics in fuch cafes, and how long the fymptoms may be kept up by the retention of feeds in the ftomach. In the cafe of my patient, as we have feen, feveral of the feeds were brought up on the fecond day, by means of an antimonial emetic, notwithstanding the patient had been fo freely puked on the day fhe fwallowed the feeds; and in Dr. Ruff's patient a fimilar effect refulted from a large dofe of emetic tartar, at the end of a week, notwithstanding an emetic of lefs activity, given foon after the poifon had been fwallowed, brought up only phlegm. All the cafes I have fpoken of tend to fhew that our endeavours in fimilar instances fhould be directed to the fpeedy evacuation of the feeds, by means of active and repeated emetics, and of purgative medicines and clyfters.

This plant, though not originally a native of Europe, is now but too common in every part of it. Our countryman Gerarde fpeaks of it as being, in his time, a rare and ftrange plant

* London Med. Journal, Vol. X. p. 285.

in England*; but it is now so frequent, that by later writers we find it described among our indigenous plants.

IX. *A Case of Hydrophobia.* By Mr. Richard Simmons, Surgeon to the British Lying-in Hospital.

ON Friday, August the 23d, 1793, about one o'clock in the afternoon, I was requested to see Mary Strong, a poor woman, at No. 11, Lewkner's Lane, aged forty-three years. The account she gave me was, that she had been unable to swallow any liquids during the last two days, as she no sooner put some to her mouth, than she was seized with a kind of suffocation. She observed, however, that she could swallow solids. She had, I was told, eaten an apple very well just before I saw her, and in my presence she ate some bread.

* See Johnson's edition of Gerarde's Herball, Folio, London, 1633, p. 348.

She was cosfive ; her pulse was natural ; but her thirst was extremely distressing. I desired she would try to drink some water, and she accordingly made the attempt ; but no sooner had she brought the pot containing some near her lips, than she threw her head back with great agitation, and could not get any into her mouth. I then asked for a pan of water, which I put up to her face ; this produced in her very great emotion. A woman, who was present, thought this agitation might arise from an idea that the water was going to be thrown at her ; but the patient's manner being sufficient to convince me there was no ground for such a supposition, I asked her to approach her face to it gently, when placed near her. This she very readily tried to do, but the event was the same as when I held the pan.

From these circumstances I had no doubt that she laboured under hydrophobia ; and upon farther inquiry, I learnt that she had been bitten about two months before, by a dog, on the middle finger of her left hand. The wound being trifling, she had thought no more of it ; the dog, I was informed, had been killed by some people in the neighbourhood, on a supposition of its being mad.

I di-

I directed for her opium, in substance, to be occasionally repeated; but the next day (the 24th) when Dr. Hemming accompanied me to her, we found that she had refused to take any thing in the way of medicine, but that she had taken often of some bread soaked in wine and water. She had passed but an indifferent night, and her pulse was much quickened. Upon our requesting her to endeavour to drink something, she told us she would, if possible, do any thing we desired of her; but that although her thirst was still excessive, it was not in her power to drink. We advised her to try to drink something out of a tea pot, but the attempt threw her into great distress. After we had been with her a little while, however, she swallowed a tea spoonful of wine and water in a hasty confused manner. This induced us to persuade her to try to take a larger draught; she took some in a tea cup in her hand, and threw it into her mouth hastily, and with great difficulty swallowed a very little of it; but immediately after threw herself back in the bed in a convulsive kind of manner.

We now left her, and advised that she should have a clyster injected immediately; and that an ounce of ung. hydrarg. fort. should be rubbed

bed in on her thighs during the day ; she was likewise advised to make trial of the opiate.

I saw her again about half past twelve o'clock on the 25th. She had had no sleep, talked in an incoherent manner, hiccoughed, and spate frequently a viscid saliva, and foamed at the mouth ; her pulse was now not perceptible ; the clyster had produced one copious stool ; she had been unable to take any of the opiate, and had refused to have more than two drachms of the ointment rubbed in. Her countenance was wild ; her speech altered ; and every appearance indicated a speedy dissolution, which accordingly took place that afternoon, about three o'clock, two hours after I left her. From the people who were about her, I afterwards learnt that she died very quietly, and that just before her death she vomited about a pint of something, as they described it, like coagulated blood.

Leave could not be obtained to open the body.

There is so little to be deduced from this case, that some apology might be necessary for offering it to the public, if the disease of which
it

it is an instance, were less rare or better understood; but in the present imperfect state of our knowledge with respect to the pathology and treatment of hydrophobia, every well-authenticated instance of it seems to deserve to be recorded. Some valuable observations respecting this disease, by Dr. John Hunter, drawn up from cases and materials collected by a Society for the improvement of medical and chirurgical knowledge, have been lately published in their Transactions; and a similar arrangement of facts, made from time to time, may perhaps, by degrees, lead us to a more successful mode of treating a disease which has hitherto baffled every attempt to relieve it.

The little deviation from the natural state of the pulse, which occurred during the first two days in my patient, has been observed in other instances at the beginning of the disease.

In this case, notwithstanding her inability to swallow any thing liquid, the patient, as we have seen, complained of very distressing thirst; a symptom which I do not find mentioned in the descriptions I have met with of other instances of the disease.

*Newman Street,
November 23, 1793.*

X. An

X. *An Account of a Child born without Organs of Generation.* By Mr. Edward Ford, F. A. S. Surgeon to the Westminster General Dispensary.

IN December, 1792, I was desired to see a child, born a few days before, with the anus imperforate in its usual place, the fæces appearing to be discharged through the vagina. The external parts were remarkably small in their conformation; the orifice of the meatus urinarius admitted a probe into the bladder; but on attempting to pass a director, and afterwards a small probe into the passage from which the fæces were discharged, I found it impracticable from the smallness of the aperture; and at the same time I discovered that there was no cavity similar to the usual one of the vagina.

It was proposed a few days afterwards to form an artificial opening for the discharge of the fæces in the usual situation of the anus, by introducing a probe into the preternatural opening, and pushing it backwards, so as to project
it

it below the os coccygis, and then to cut upon the instrument, in order to form, if possible, an outlet for the fæces, less liable to the inconveniences which must inevitably have resulted from the unfortunate derangement of parts which at present subsisted. A time was fixed for the operation, but the infant soon after becoming disordered in its health, it was judged unnecessary to attempt it.

The child died when it was three weeks old, and I had an opportunity of examining it after death, in the presence of Dr. Jackson, of Hanover Street, and Mr. Hunt, apothecary, of Swallow Street.

The first consideration which presented itself to my mind, was to perform such an operation, on the dead body, as would have been thought requisite to be done if the child had lived. In doing this, it was still found impossible to pass an instrument into the rectum from the external parts, till they were dilated downwards, in order to discover the orifice through which the fæces were discharged. This dilatation being effected, the aperture became visible; and on pressing the abdomen with my hand, the fæces were copiously discharged.

I then

I then introduced a director into the rectum, and projecting it backwards, easily cut upon it, and, without much difficulty, formed an external communication with the gut in the part where the anus is usually formed. Had the child survived to have had this operation performed, it may be questionable, whether it would have fully answered the purpose of relieving the great inconvenience it laboured under. It might have been difficult to have procured the entire passage of the fæces through this artificial opening; and even had such an attempt succeeded, the want of a sphincter ani would have been a misfortune not likely to be supplied by art. Still, however, the disagreeable circumstance of living under so great a calamity as this child was born with, was sufficiently obvious to justify every attempt towards its relief.

On opening the cavity of the abdomen, and tracing the intestinal canal from the stomach, every part was found to be in a healthy state, and nothing preternatural occurred, till we came to the rectum, which was found to terminate close to the bladder, in the aperture before mentioned, just below the urinary passage.

The

Fig. II.

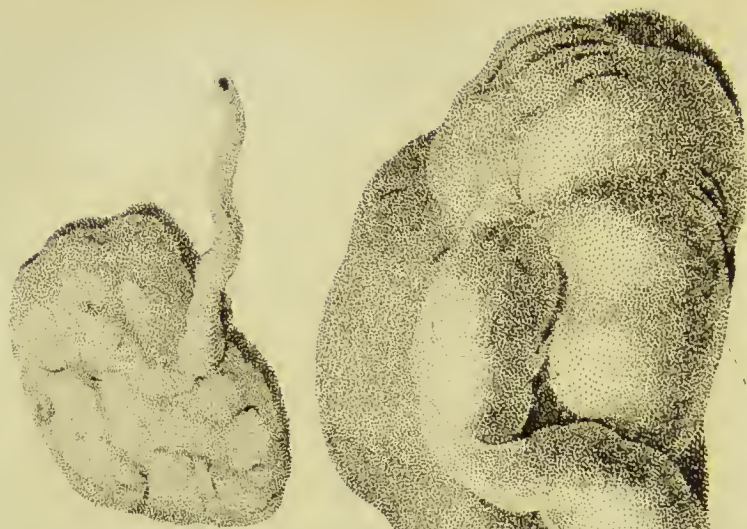
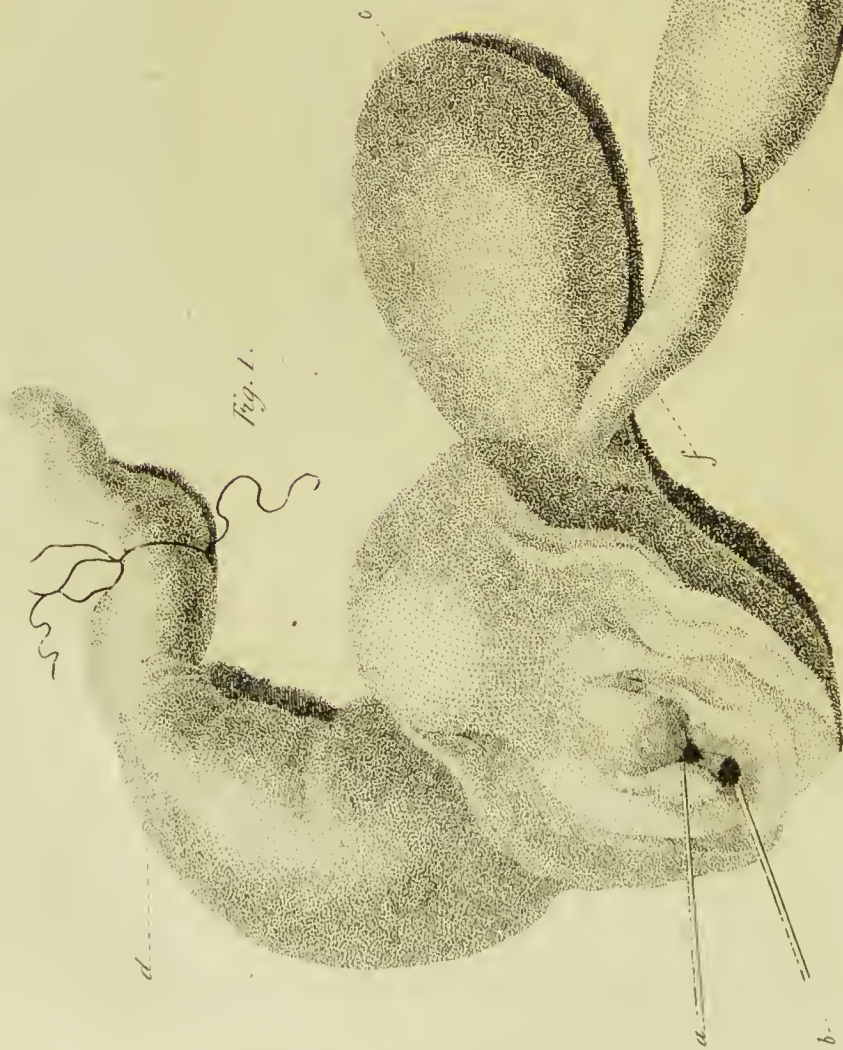


Fig. I.



The liver, gall bladder, spleen, and pancreas, were in a healthy and natural state.

On removing the intestines, an unusual prominence was observed on the left side, which proved to be the left kidney much enlarged; with its ureter dilated through its whole length (but principally at its origin) and terminating nearer to the neck of the bladder than usual. The opposite kidney, on the right side, formed a striking contrast to the left; it was very small and flat, and resembled, in size and figure, a common bean; its ureter was about an inch in length, and had no connexion with the bladder.

The renal glands were wanting.

With regard to the contents of the pelvis, the bladder and rectum were as above described, contiguous to each other; and the termination of the rectum was close to that of the urethra*:
but

* In Fig. I. of the annexed engraving, (see Plate I.) the external parts are a little dilated, in order to show the preternatural termination of the rectum a little below the meatus urinarius; *a* refers to a probe passed into the meatus urinarius; *b* to a probe passed into the anus; *c* to the fundus of the bladder; *d* to the rectum; *e* to the left kidney

but upon the most accurate inspection, both by Dr. Jackson and several other gentlemen who have since viewed the preparation, it is evident that this child, which can scarcely be called a female, was born without either ovaria, uterus, or vagina:



XI. Case of Apoplexy in a pregnant Woman ; with Observations. By Mr. Philip Williams, Surgeon at Rugby in Warwickshire. Communicated in a Letter to John Clarke, M.D. Teacher of Midwifery in London ; and by him to Dr. Simmons.

THE following case, which I offer to you, appears to me to deserve attention, not only from the remarkable situation of the children, but also from the circumstances attending

kidney much enlarged ; and *f* to the termination of the left ureter.

Fig. II. shows the right kidney, uncommonly small.

the

the death of the patient. I shall first take notice of the latter, and then proceed to make some few remarks on the former.

A woman, about forty years of age, who was the mother of several children, had advanced to the last month of her pregnancy without any thing remarkable having occurred. One day, when she was in apparent good health, and going about her usual occupations, upon a slight exertion she suddenly complained of a violent pain in her head, and had scarcely time to reach a chair, into which she sunk, and never stirred nor spoke afterwards.

On my coming to her, and finding her quite dead, I introduced my finger into the vagina, and found the os uteri dilated to the size of a crown piece, but was prevented, by the husband's coming, (who would not suffer any thing to be done) from ascertaining what part presented.

Dr. Baillie and Mr. Cruikshank afterwards examined, with me, the body at their dissecting room. On opening the head coagulated blood was found in all the ventricles, and some had penetrated the very substance of the right optic nerve.

From the quantity of blood, (for there was

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between

between two and three ounces) and from the situation in which it was found, we need not wonder at the sudden death of the patient. But it deserves attention to enquire how far we shall be able to trace the cause of the extravasation. The woman was by no means of a plethoric habit; neither was she, at the time of her seizure, using any violent exertion.

Might not a disposition to labour having come on, from the connexion known to exist between the brain and the uterus, produce a greater determination of blood to the brain than its vessels were capable of bearing, and hence occasion the rupture? That there had been an affection of the uterus, appears very probable from the state in which the os uteri was found.

The presentation has, I believe, never been before delineated. Both children, as will be seen by the plate *, present preternaturally; one with the breech, the other with the foot.

It may become a question whether any difficulty would have occurred in the delivery? And also which of these children would have been born first had labour come on? It is most pro-

* See Plate II. in which the letters *a*, *a*, refer to the parietes of the abdomen, and *b* to the fundus uteri with the placenta adhering.



Ravenhill sculp.

bable that the woman would have been delivered without any thing unusual occurring or having been known of the situation in which the children had lain in the womb. Had the labour been suffered to proceed of its own accord, I think that the one whose breech now presents would have been born first. For though the child, whose foot presents, (and which is under the breech of the other) has its head nearest to the fundus of the uterus, and consequently when the uterus came into action, the longitudinal fibres would have acted most completely upon it; yet from the circular form in which it lies, its head, instead of acting upon its own body, would probably have acted upon the head of the other child whose breech presents, and forcing it down, might either itself have gradually gone round, and, before the first child had been born, making a complete evolution, have been born head first; or it might have remained with its head where it now is, and after the birth of the other child have come with its feet first.

One of the above circumstances, I think, would have happened had Nature been left to herself; but had the woman been attended in labour

by one who was impatient of delay, it is most probable that when the foot was found presenting, that child would have been brought first, in which case I do not think that any difficulty would have occurred in the delivery of the other.

Query. Might not the labour mentioned in the thirty-eighth chapter of Genesis, v. 28, 29, and 30, have been similar to the case which I have related; and that though the hand of one of the children was lowest at the beginning of labour, yet as the most bulky part of the other child was below the body of this child, the hand receded, and the other child came first into the world?

XII. *Description of Kilburn Wells, and Analysis of their Water.* By Mr. Joh. Godfr. Schneiſſer. Vide *Philosophical Transactions of the Royal Society of London, for the Year 1792. Part I.* 4to. London, 1792.

THESE wells lie in a meadow, to the right of the Edgeware road, about two miles from London.

The author observes that they spring about twelve feet below the surface; that the water is
not

not perfectly bright, but of rather a milky hue; that it has a mild and bitterish taste, with little or no briskness, as containing a very small proportion of fixed air; that on dipping for it, or otherwise agitating it, a sulphureous smell is perceived near the surface, which, however, soon goes off in a temperature of 80° of Fahrenheit's thermometer; and that the changes in the atmosphere do not appear to affect either the quantity or quality of the water.

Mr. Schmeisser found the specific gravity of the Kilburn water to be to distilled water as 1,0071 : 1,0000; and its general temperature 53° , which was not affected by a change of ten degrees in the temperature of the atmosphere.

While the water continued at rest, no ebullition of fixed air, we are told, was perceived, and scarce any sulphureous smell.

That this mineral water so easily parts with the hepatic air (perceivable on agitating it) if it be shaken in a warmer temperature, or transported from one place to another, is, our author thinks, probably owing to the fixed air which it contains; for as this aërial acid has a great affinity to phlogiston, so, he observes, it may hence be inferred, that fixed and hepatic air cannot exist together in a mineral water, but

that the latter will be destroyed, as the fixed air is developed by gentle warmth.

For the detail of Mr. Schmeiffer's ingenious experiments on this water, we must refer the chemical reader to the work itself, as they cannot well be abridged. They consist of experiments with reagent substances ; of experiments to ascertain the properties and proportion of the elastic fluids contained in the water ; and, lastly, of experiments to ascertain the fixed constituent parts of the water, and their properties.

The results of this seemingly very accurate analysis are included in the following summary of the constituent parts of the Kilburn water, in 24 pounds.

Fixed air	-	-	84	cubic inches
Hepatic air	-	near	36	
Vitriolated magnesia	-		910	grains, equal to 3ij 3iiss, Apothecary's weight.
Vitriolated natron	-		282	gr. = 3v. liij grains
Muriated natron	-		60	gr. = 75 gr.
Selenite	-		130	gr. = 3ij xliij gr.
Muriated magnesia	-		128	gr. = 3ij xl gr.
———— calcareous earth			6	gr. = 7½ gr.
Aerated magnesia	-		12½	gr. = 15 gr.
———— calcareous earth			24	gr. = 30 gr.
Calx of iron	-		38	gr. = 4 gr.
Resinous matter	-		6	gr. = 7½ gr.

Sum 1561½ grains, equal to medicinal weight, 4 ounces, 0 drams, and 32 grains

XIII. *An*

XIII. *An Account of the remarkable Effects of a Shipwreck on the Mariners ; with Experiments and Observations on the Influence of Immersion in fresh and salt Water, hot and cold, on the Powers of the living Body.* By James Currie, of Liverpool, M. D. Fellow of the Royal College of Physicians at Edinburgh. Vide *Philosophical Transactions of the Royal Society of London, for the Year 1792. Part II.* 4to. London, 1792.

THE circumstances of the shipwreck, which suggested the ingenious experiments described in this paper, were as follows :

On the 13th of December, 1790, an American ship was cast away on a sand-bank that lies in the opening of the river Mersey into the Irish Channel. The crew got on a part of the wreck, where they passed the night ; and a signal which they made being discovered next day from Hillberry island, a boat went off, and took up the survivors. The unfortunate men had remained twenty-three hours on the wreck ; and of fourteen, the original number,

eleven were still alive, all of whom in the end recovered. Of the three that perished, one was the master of the vessel; another was a passenger who had been a master, but had lost or sold his ship in America; the third was the cook.

The cook, who was a weakly man, died a few hours before the boat reached the wreck; but the two masters had been long dead.

Both the masters, we are told, were strong and healthy men, and one of them a native of Scotland, in the flower of life, early inured to cold and hardships, and very vigorous both in body and mind. On the other hand, several of the survivors, it is observed, were by no means strong men; and most of them had been long accustomed to Carolina and other warm climates: the person among the whole who seemed to have suffered least was a negro.

The death of the two masters was said to have been owing to their having taken possession of a keg which had contained cherry-brandy, and which still contained the cherries; these, it was reported, they had kept to themselves, and eaten in large quantities after the shipwreck; and this, having produced intoxication, was supposed to have hastened their death.

death. Some experienced seamen were satisfied with this account, which indeed seemed very rational ; for though spirituous liquors may fortify the body against the effects of heat combined with moisture, and may perhaps support it for a short time under great fatigue, they would seem, as our author very properly observes, to be uniformly hurtful when taken under severe and continued cold. Pleased to see a doctrine becoming popular which has been so ably supported by Dr. Aikin*, and others, he was induced to think it might receive a striking confirmation from this catastrophe, into the particulars of which he determined to examine accurately. He therefore obtained access to the survivors of the crew, and from them, but more especially from Mr. Amyat, the mate, an intelligent young man, he received the information which he required.

From repeated conversations with this person, Dr. Currie learnt that Captain Scott, the master of the vessel, died in about four hours after the ship struck ; and that Captain Davison, the passenger, died in about seven : but that

* See Transactions of the Philosophical and Literary Society of Manchester, Vol. I.

the incident of their having eaten the cherries was entirely without foundation: of this Mr. Amyat was certain, for he saw the keg which contained them flaved, and the cherries, falling on the wreck, were immediately washed into the sea. Mr. Amyat, we are told, expressed his surprise at the early death of the two masters, but could not assign any cause for it. He said there was no liquor of any kind saved, nor any sort of food; that the whole crew were on an equality in all points, except that some were deeper in the water than others, but that the two masters had the advantage in this respect, for they sat on the only part of the wreck that was out of the sea, whereas the negro, who escaped almost unhurt, was perhaps deepest in the sea of any. Mr. Amyat, it seems, explained this in the following manner: when the ship struck they cut away her masts to prevent her from oversetting, and after this she drifted over the sand-bank, into what he called a “swash” on the other side. Here she floated, and they let go their best bower anchor, but it dragged, and the vessel struck again in a few minutes on another bank. In this situation she lay some time, beating against the sand, and the sea breaking over her. In a little while Mr. Amyat saw the tar barrels, which

which formed her cargo, floating towards the land, and soon after the bottom parted entirely, and was carried in the same direction. Happily for the men, the part of the wreck on which they were lashed was held by the anchor, and floated in the water, a small portion of the after part of the quarter deck being above the surface. On this sat the two masters, generally out of the sea, but frequently overwhelmed by the surge, and at other times exposed to heavy showers of sleet and snow, and to a high and piercing wind. The temperature of the air, Dr. Currie observes, as nearly as could be guessed, was from 30° to 33° of Fahrenheit, and that of the sea, from trials in similar circumstances, from 38° to 40° . Immediately before the two masters was Mr. Amyat himself. As he was sitting, and the deck sloped pretty rapidly, he was generally, we are told, up to the middle in the water; and some of the others were up to the shoulders. They were not, it is observed, at any time able to change their position, but kept their legs in pretty constant motion to counteract the cold, their arms being employed in holding by the wreck.

The master of the ship, Captain Scott, a native of North Carolina, and about forty years
of

of age, died first. As they were in the dark, Mr. Amyat could not see his countenance; but he was first alarmed by hearing him talk incoherently, like one in the delirium of fever. By degrees his voice dwindled into a mutter, and his hearing seemed to fail. At length he raised himself up in a sort of convulsive motion, in which he continued a few seconds, and then fell back dead on the deck. This happened about eight in the evening; four hours after the ship went aground. Soon after this, Captain Davison, who was about twenty-eight, began to talk incoherently, in the same manner as the other. He struggled longer, but died in the same way, at about eleven at night. The cook died in the forenoon of the succeeding day. He was a low-spirited man, we are told, and desponded from the beginning. All the rest held out, as has been already mentioned, till they were taken up about three in the afternoon. Mr. Amyat said that his hands and feet were swelled and numb, though not absolutely senseless; he felt a tightness at the pit of his stomach, and his mouth and lips were parched; but what distressed him most was cramps in the muscles of his sides and hips, which were drawn into knots. Though immersed in the sea, they
were

were all of them, it seems, very thirsty; and though exposed to such severe cold, Mr. Amyat himself was not drowsy, nor were any of the men drowsy, nor did sleep precede death in those that perished.

Dr. Currie reflecting on these curious facts, had no doubt that the death of the two masters was to be imputed to their peculiar position on the wreck. Exposed to heavy showers of sleet and snow, they might, he thought, suffer from being wet with fresh rather than salt water; or from being exposed to the cold of the atmosphere, probably seven or eight degrees greater than that of the sea. The chilling effects of evaporation, he conceived, might operate against them, promoted as these must have been by the high wind; or they might receive injury from their frequent immersions in the sea, producing an *alternation* in the media surrounding. This last supposition, however, did not, he confesses, strike him at the time; but the others, he observes, dwelt on his mind.

Of the powers attending animation, Dr. Currie remarks, that which seems fundamental, is the capacity of the living body of preserving the same heat in various degrees of temperature of the same medium, and, indeed, in media
of

of very different density and pressure. If a definition of life were required, it is, he thinks, on this faculty that it might best be founded. It is known, he observes, that some fluids, applied to the skin, vary in their effects according to their impregnation ; that in the same degree of temperature, for instance, pure water on the surface of the body is much more hurtful than water in which salt is dissolved. Seafaring men, he remarks, are universally acquainted with this, and for a striking proof of the truth, as well as of the importance of the observation, he refers us to the Narrative of Lieut. Bligh. Our author thought it probable that the saline impregnation might stimulate the vessels of the skin, so as to counteract the sedative or debilitating action of the cold. At any rate, it seemed to him not unlikely that some light might be thrown on this curious subject, by observing the effects of immersion in fresh and salt water, of equal temperature, on the animal heat ; and this, he conceived, might also assist in accounting for the death of the unfortunate men already mentioned. He therefore made the following experiments.

EXPE-

EXPERIMENT I.

A large vessel, containing one hundred and seventy gallons of salt water*, was placed in the open air. The atmosphere was damp and raw. The thermometer, both in the air and in the water, stood at 44° . The subject of the experiment was Richard Edwards, a healthy man, twenty-eight years of age, with black hair, and a ruddy complexion. The hour chosen for his immersion was four in the afternoon, about two hours after his dinner; a time, Dr. Currie tells us, appointed rather for his own convenience, than as being most proper for the purpose.

The heat of the person who was the subject of the experiment was 98° before undressing; his pulse 100 in the minute. He was undressed in a room where the mercury was at 56° ; and afterwards stood naked before the fire till his

* In a subsequent part of his paper the author observes that the salt water, employed in this and the following experiments, contained salt in the proportion of one to twenty four.

heat

heat and pulse were examined again, and found as before. He then walked pretty briskly through a flagged passage into an open court, where the north-east wind blew sharply upon him: he was exposed to it for a minute, and then plunged suddenly into the water up to the shoulders. The thermometer, which had been kept in a jug of warm water, at the heat of 100° , was introduced into his mouth, with the bulb under his tongue, as soon as the convulsive sobbings occasioned by the shock were over. The mercury fell rapidly, and a minute and a half after immersion it stood at 87° . He remained motionless in the water, and the mercury rose gradually; at the end of twelve minutes it stood at $93^{\circ}\frac{1}{2}$. While he sat in the water, it occurred to the author to examine his heat when he rose out of it into the air. He had reflected, he tells us, on the power that must be employed to keep up his heat in a medium so dense as water, and where an inanimate body, of the same bulk, would have cooled so much more speedily than in air of the same temperature. Supposing that this heat producing process, whatever it may be, might continue its operations some time after the extraordinary stimulus (the pressure of the water) was removed,

moved, he expected to see the mercury rise by the accumulation of his heat, on changing the medium of water for air, and therefore he kept him exposed, naked, to the wind, two minutes after taking him out of the bath. To his surprise, although the attendants were rubbing him dry with towels during this time, the mercury fell rapidly. He was put into a warm bed, and his heat, when examined under the tongue, was 87° , at the axilla 89° . Frictions were used, and brandy mixed with water administered; but Dr. Currie found that the best mode of counteracting the cold, was to apply a bladder, with hot water, to the pit of the stomach, a fact which seems important; this being done, his shiverings, which before were severe, soon ceased, and he became more comfortable. Three hours afterwards, however, he had not entirely recovered his former heat; but by eight at night, he was in all respects as usual.

The author observes that he has been very minute in detailing the circumstances under which this experiment was made; because some of the particulars which, at the time, he thought of little consequence, he found afterwards of

importance. The experiment itself he determined to repeat as exactly as possible.

EXPERIMENT II.

On the next day, at the same hour, the same person was again immersed as before. His pulse previously was 85, his heat 100° . He had been put to bed an hour before, to save the time spent in undressing. The heat of the water and of the atmosphere was 44° . The wind was north-east, and strong. On this occasion, as before, there was a rapid fall of the mercury; the following table shows the progress of the return of his heat :

2 min. after immersion	Ther.	89 $^{\circ}\frac{1}{2}$	9 min. after immersion	Ther.	95 $^{\circ}\frac{3}{4}$
3 ——— - -	90 $^{\circ}\frac{1}{2}$	10 min. - -	94 $^{\circ}\frac{1}{2}$		
4 ——— - -	92 $^{\circ}\frac{1}{2}$	11 ——— - -	95		
5 ——— - -	94 $^{\circ}\frac{1}{2}$	12 ——— - -	95		
6 ——— - -	95	13 ——— - -	95 $^{\circ}\frac{1}{4}$		
7 ——— - -	95 $^{\circ}\frac{3}{4}$	14 and 15 min. -	95		
8 ——— - -	95 $^{\circ}\frac{3}{4}$				

At the end of fifteen minutes he was taken out, and stood three minutes, naked, exposed to the north-east wind, at the end of which time the mercury had sunk to 88° . A draught
of

of ale was given him, and he was put into a warm bed; in three minutes after the mercury rose to 93° . An hour after his heat was 95° .

The effects produced by this alternate exposure to water and air of the same temperature, gave a new direction to our author's ideas, and determined him to inquire again into this singular phenomenon. The most obvious method, he observes, would have been to have prolonged the process of alternation, and replunged the person cooled by the external air into the bath; but this, he adds, was running too great a risk, unless some more sudden and certain method could be found of restoring the heat that might be lost. He deemed it prudent, therefore, to proceed more cautiously. In the next experiment he resolved to try the methods of heating as well as cooling the body.

EXPERIMENT III.

On the following day, at the same hour, the same person was again immersed in the salt-water bath. His heat previously was 98° , his pulse 100; the temperature of the water and of

the atmosphere, as before, 44° . The mercury sunk rapidly to 90° .

2 minutes after the thermometer was at	-	88°	10 min. after the thermometer was at	-	$94^{\circ}\frac{1}{2}$
3 min.	-	88	11 min.	-	$94^{\circ}\frac{3}{4}$
4 —	-	88 $\frac{1}{2}$	12 —	-	95
5 —	-	$90^{\circ}\frac{1}{2}$	13 —	-	96
6 —	-	92	14 —	-	96
7 —	-	92	15 —	-	96
8 —	-	94	16 —	-	96
9 —	-	94			

He was now taken out, and stood in the wind three minutes, shivering violently. This circumstance, we are told, rendered it difficult to ascertain exactly the fall of the mercury, which was, however, it seems, considerable. When examined in the room in which he undressed, it stood at 90° . He was now plunged into a fresh-water warm bath, heated to $97^{\circ}\frac{1}{2}$, and yet the mercury fell two degrees.

1 min. after immersion, in the warm bath, the mercury was at	-	88°	5 min. after	-	94°
2 min.	-	92	6 —	-	96
3 —	-	92	7 —	-	96
4 —	-	94	8 —	-	96
			9, 10, 11, 12, to 16,		96

Dr. Currie observes, that if the rise of heat in the cold bath at 44° , and in the warm bath at $97^{\circ}\frac{1}{2}$, be compared, the first will be found more

more flow ; but that after being sixteen minutes in the one and in the other, the heat was the same in both cases, when taken at the mouth. It must, however, he adds, be acknowledged, that in the cold bath the extremities were chilled and cold, while in the hot bath the heat was equally diffused.

When the man got out of the hot bath, he put on his clothes, and was remarkably alert and cheerful the whole evening. Encouraged by the safety of these experiments, our author resolved to increase the time of immersion in the cold bath, and to inquire more generally into its effects on the sensations, as well as heat.

EXPERIMENT IV.

At the same hour of another day, the same person was again immersed as before, his heat previously being $97^{\circ}\frac{1}{2}$, and that of the water 42° ; the wind was north-east, and brisk.

1 minute after, heat	90°	12 minutes	- - -	
2 minutes - - -	92	13 ———	- - -	
3 ——— - - -	92	14 ———	- - -	$94^{\circ}\frac{1}{2}$
4 ——— - - -	$92\frac{1}{4}$	15 to 24	- - -	$94\frac{1}{2}$
5 ——— - - -	92	25 ———	- - -	94
6 ——— - - -	$92\frac{1}{2}$	26, 27	- - -	
7 ——— - - -	94	28 ———	- - -	$94\frac{1}{2}$
8, 9, 10, 11 - -	94	29, 30	- - -	94

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It will be observed, that in the above table there are blanks left in the report. At such times the thermometer, we are told, was taken out of Edwards's mouth, to admit of his answering the questions put to him. He said, that on plunging into the water he felt an extreme cold, which he could not but think was partly owing to his being exposed, naked, to the wind before; that this cold diminished, and in a little while he felt comfortable, but that after a while the sense of coldness returned, though less than at first; diminishing again, but in a less degree. At length his sensations became pretty fixed. In this state, when the water was at rest, he should not even have known, by his feelings from the upper part of his chest to the pubes, that he was in water at all. His feet and legs were very cold: so were his hands and arms; and so also the penis and scrotum. He mentioned, likewise, that he felt a cold circle round the upper part of his body, though not constantly. On examining into this, Dr. Currie found it was greatest at first, and that it extended over the space which, from the undulations left in the bath by the plunge of immersion, was alternately above and under the surface of the water: when the bath settled, it was little

tle.

tle felt; but by agitating the fluid, he could reproduce it, at any time when the cold in the extremities was not so great as to prevent its being felt. This curious particular serves, our author thinks, to explain a circumstance much dwelt on by Mr. Amyat, in giving an account of his sufferings on the wreck; that what he felt most severely was the cramps in the muscles of his hips and sides, parts which, from his situation on the wreck, must have been alternately under and above the surge. From Mr. Amyat's account, it appeared that the sea did not break over the sufferers all the time they were on the wreck. The wind moderated, as well as the waves, and for the last fifteen hours they were not at any time overwhelmed, or at least Mr. Amyat himself was not. The cold never abated. Being all lashed to the wreck, they never changed their positions: the bodies of those who died occupied the space where they were originally placed. Mr. Amyat, therefore, during the whole time sat nearly up to the middle in water, but subject to the variations occasioned by the motion of the sea.

To return to the subject of the experiment. When he was exposed, naked, to the wind, the mercury sunk as usual five or six degrees,

and his shiverings were great. With a view to restore his heat as speedily as possible, the bath was heated to 104° : but after being half a minute in it, he screamed out with pain, especially in his extremities, and about his scrotum. When taken out, his shiverings we are told, almost amounted to convulsion. The bath was lowered to 88° , and he was replaced in it, and its temperature progressively, but pretty rapidly, increased to 100° . He continued, however, to shiver much, his heat remaining about 90° ; but a bladder, with very hot water, being introduced under the surface of the bath, and applied close to the stomach, the good effects, it is remarked, were instantaneous, his shiverings ceased, and his heat mounted rapidly to 98° .

All these experiments having been made on one person, Dr. Currie determined to repeat this last on another.

EXPERIMENT V.

Rich. Sutton, aged 19, of a pale complexion, and a feebler frame, was immersed in the bath,
under

under the circumstances of the preceding experiment. His heat was previously $96^{\circ}\frac{1}{2}$.

$\frac{1}{2}$ a minute after, heat	92°	18 minutes	- -	$93^{\circ}\frac{1}{4}$
1 minute	- - 90	19	- -	$93^{\circ}\frac{1}{2}$
2	- - $88^{\circ}\frac{1}{2}$	20, 21	- -	94
3	- - 89	22	- -	$92^{\circ}\frac{1}{2}$
4	- - 90	23	- -	$92^{\circ}\frac{1}{4}$
5	- - 92	24	- -	$92^{\circ}\frac{1}{4}$
6	- - $92^{\circ}\frac{1}{4}$	25	- -	94
7 to 10	- - 92	26	- -	94
11	- - -	27	- -	$92^{\circ}\frac{1}{2}$
12 to 15	- - 92	28	- -	$92^{\circ}\frac{3}{4}$
16	- - $92^{\circ}\frac{1}{2}$	29	- -	94
17	- - 93	30	- -	94

Dr. Currie observes, that although this person seemed to bear the cold bath well, having lost in thirty minutes only $2\frac{1}{2}$ degrees of heat, yet that when exposed afterwards to the wind, he shivered violently, and lost his heat very fast. He was put into a warm bath, heated to 96° , but recovered his heat very slowly, as appears from the following table :

1 minute after, heat	88°	
2 minutes	- - 90	
2	- - $90^{\circ}\frac{1}{2}$	
4	- - 90	great shivering.
5	- - 90	here the bath was heated to 100° .
6	- - 90	shiverings still.
7	- - 90	ditto.
8, 9	- - $90^{\circ}\frac{1}{2}$	ditto.
10	- - 92	ditto.

11	minutes after,	heat	92°	bath heated to 104°.
12	—	-	94	
13	—	-	93	— heated to 108°. Shiverings.
14	—	-	93	a bladder with very hot water applied to the stomach.
15	—	-	94	
16	—	-	96	very comfortable.

EXPERIMENT VI.

Richard Edwards, the original subject of experiment, was again immersed in the cold bath, of the temperature of 40°, and remained in it three quarters of an hour. His heat, it is remarked, was previously 97°; his pulse 90 in the minute. The mercury fell to 92°, was stationary for a few minutes, and then mounted, though, as usual, with no regularity. In twenty-two minutes it stood at 96°; it then began to decline, and in twenty-three minutes more had sunk to 94°. Upon his being exposed as usual to the wind, the mercury, we are told, sunk as before, and he shivered violently. In the warm bath at 96° his shiverings continued several minutes, his heat remaining at 90 and 91°. In seven minutes the mercury began to rise fast, and five minutes after was at 96°.

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EXPERIMENT VII.

The effects of forty-five minutes immersion in the cold salt-water bath, at 40° , were proposed to be tried on Richard Sutton. He was, it seems, much under the impressions of fear, and his heat previously raised the mercury only to 94° . The mercury, we are told, sunk, as before, on his immersion, but to an unusual degree. It did not stop in its fall till it got to 83° , which the author thinks might be in part accounted for by the extraordinary chattering of his teeth, admitting some contact of the air. It then mounted in the usual irregular way, and at the end of thirteen minutes had got to 92° . Here it stood for nineteen minutes longer with little variation; at the end of this time it began to fall rapidly, though irregularly, and in three minutes was down at 85° . He had now been thirty-five minutes in the water, and Dr. Currie did not think it safe to detain him longer; he therefore hurried him into a warm bath, heated to 96° , where he shivered much. The bath was heated gradually to 109° , and in this heat he recovered his pro-

per

per temperature in about twenty-eight minutes. Being then put into a warm bed, he fell into a profuse perspiration, which left him in his usual health.

With respect to the state of the pulse in these experiments, Dr. Currie observes that it was not possible to keep the subjects of them from some degree of previous agitation, and that this always quickened the pulse. The natural pulse of Edwards, it seems, was about 70 in the minute; but Dr. Currie found that it was never slower than 85 before immersion, and generally more. However this might be, it invariably, we are told, sunk to 65, or from that to 68, in the water, and became firm, regular, and small. After being long in the bath, it could hardly be felt at the wrist, but the heart pulsed with great steadiness and due force. In the last experiment, it seems, when the heat sunk rapidly, Sutton said he felt a coldness and faintness at the stomach, which he had not perceived before, and the motion of his heart was then found to be feeble and languid. In some other trials of the effects of immersion in fresh water, (one of which is related in a subsequent part of the paper) the same coldness at the stomach is said to have preceded a rapid fall of the mercury;
and

and these facts, together with the effects found from applying a considerable heat to this part when the body was chilled with cold, have convinced our author that there is some peculiar connexion of the stomach, or of the diaphragm, or both, with the process of animal heat. Whoever, he remarks, will consider the rapidity with which a dead body would have cooled immersed in water of the temperature of 40° , may form some estimate of the force with which the process of animal heat must have acted in the experiments already recited. These experiments, however, he contends, furnish irrefragable proofs of the futility of some of the theories of animal heat. The increase of heat, in fever, he observes, has led some persons to believe that animal heat is produced by, or immediately connected with, the action of the heart and arteries; but in these experiments, he remarks, although heat must have been generated in the bath with more than fourfold its usual rapidity, the vibrations of the arterial system were unusually slow. Another, and a very beautiful theory of animal heat, continues the author, supposes it immediately to depend on respiration; but in the bath, after the first irregular action of the diaphragm from the

shock of immersion was over, the breathing, he observes, became regular, and unusually slow. Lastly, the curious phenomenon of the heat rising and falling, and rising again, in the bath, with the body at rest, and the temperature of the surrounding medium unchanged, is; he thinks, fatal to those theories of animation which consider the living body as a mere machine, acted on by external powers, but not itself originating action, and differing from other machines only in the peculiarity of the powers which are fitted to set it in motion: He has said that the temperature of the medium continued unchanged, but it may be supposed that the bath was heated a little during the experiments; he allows that it was so; but being exposed, with a large surface, to the open air, the wind blowing briskly over it, its heat, he observes, was little altered; in twelve minutes immersion it had gained nearly one degree, and in forty-five minutes, the longest duration of any of the experiments, it had gained three degrees. As this accession was regular, it would not, he observes, have invalidated the foregoing observations, even if it had been greater.

Many other trials were made on the effects of immersion in water on the human heat, which
the

the author speaks of generally, under the general conclusions which they suggested.

The experiments already recited, suggested to him the notion, that in all changes from one medium to another of different density, though of the same temperature, there is a loss of animal heat. He found, however, that this conclusion requires many restrictions.

1. His experiments being made on bodies of such very different density as air and water, do not, he observes, admit an universal inference of this sort.

2. Being all made in a temperature fifty degrees under the human heat, no certain conclusion, he thinks, can be drawn as to what might happen in degrees of heat much higher, where it is probable the effects of the change, if it appeared at all, might be less striking. It would seem, however, he observes, that after a person is long chilled in cold water, the first effect of passing through the external air into the warm bath, is a fall of heat in the air, and after this a still greater fall in the warm bath, followed, however, by a speedy rise.

The air and the water being equally cold, and both 45° or under, he found the loss of
heat

heat in passing from the one to the other to be regulated in the following way :

1. If, instead of being exposed naked to the wind previous to immersion in the water, the body was kept warm by a flannel covering, the mercury fell much less on the first plunge.

2. If, after plunging into the water, the person continued in it only a minute or two, a subsequent fall of the mercury did not always take place, on his emerging into the air. On the contrary, there was sometimes a rise on such occasions of the mercury, especially if the atmosphere was at rest.

3. In one instance, after continuing in the water fifteen minutes, on rising into the air in a perfect calm, though during a frost, there was little or no seeming diminution of the heat; while exposure under similar circumstances, with a north-east wind blowing sharply, though the air was many degrees warmer, produced a rapid diminution. The effects of the wind in diminishing the human heat, are, he observes, striking, and are not, in his opinion, explained by the common suppositions.

4. The loss of heat by a change of media, depends, he thinks, much on the rapidity of the change, for the plastic power of *life* in varying

rying the process of animal heat, so as to accommodate it to the external changes, acts for a time with great celerity, though this celerity seems to diminish with the strength.

EXPERIMENT VIII.

In a large room, where the mercury stood at 36° , two slipper baths were placed at the distance of six yards from each other. One was filled with cold salt water of the temperature of 36° , the other with water heated to 96° , which was the author's own heat. Undressing himself in an adjoining room by a fire, he afterwards slipped on a loose flannel dress, and descended *slowly* into the cold bath, where he remained two minutes; he ascended *slowly* into the air, and then sunk himself in the warm bath, where he remained two minutes also; he returned to the cold bath, where he staid two minutes as before, and removed from it again to the warm bath: But during all these changes of media and temperature, the thermometer with its bulb under his tongue never varied from 96° . He attributes this partly to the heat of his body being in some degree defended

by the flannel dress, partly to the calm of the air, but chiefly to the slowness of motion in these changes. He is aware that it may be said that the time of staying in the different baths was not long enough to produce any sensible change in the heat of circulating fluids of such a mass; but this, he observes, is not consistent with many of the other facts.

5. The influence of the application of cold water to the surface of the body on the heat, is in some respects, he observes, regulated by the animal vigour, as the following experiment will show.

EXPERIMENT IX.

In the same room he placed a large empty vessel: in this two young men sat down in succession, each with the bulb of a thermometer under his tongue. A man standing on a bench with a bucket containing four gallons of cold salt water, poured the whole of this quantity on the head and shoulders of each of them, suffering it to run down on the rest of the body. This process took up nearly a minute, during which our author examined the mercury, and found it unchanged. They
were

were both, we are told, directed to continue sitting without motion for a minute after, during which, in both instances, the mercury rose two degrees. A third, much inferior in vigour, submitted, it seems, to the same experiment, and the mercury continued during the affusion of the water unchanged, but in a minute after sunk half a degree. In fevers, Dr. Currie observes, where the heat is generally increased from two to six degrees above the standard of health, pouring a bucket of cold water on the head always reduces the pulse in frequency, and commonly lowers the heat from two to four or five degrees. Of this salutary practice he hopes soon to speak at large to the public.

6. The power of the body in preserving its heat under the impressions of cold, and the changes of temperature and of media, seems in some measure, our author thinks, to be regulated by the condition of the mind. That fear increases the influence of cold, and of many other noxious powers, will not, he observes, be doubted; but the state of the mind to which he alludes, is that of *vigorous attention* to other objects. This, it is well known, will, to a certain degree, deaden, or, indeed, pre-

vent, the sensation of cold; and what does this, he apprehends, prevents, or at least weakens, its physical action. Thus, in some species of madness, he observes, where the ideas of imagination are too vivid to admit the impressions of sense, cold is resisted to an extraordinary degree. He has seen a young woman, once of the greatest delicacy of frame, struck with madness, lie all night on a cold floor, with hardly the covering that decency requires, when the water was frozen on the table by her, and the milk that she was to feed on was a mass of ice.

7. There are, he thinks, particular conditions of the atmosphere, not perfectly understood, that seem to have an influence in depriving us more speedily of our animal heat, than others where the cold is greater.

In addition to his experiments with salt water, Dr. Currie made some trials to ascertain the effects of immersion in fresh water on the animal powers, and particularly on the heat; of these he has thought it sufficient to relate the following :

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EXPERIMENT X.

In the same vessel, containing an equal bulk of fresh water, Richard Edwards, the subject of his first experiments, was immersed, at the same hour of the day. His heat previously was 98° , his pulse beat 92 in the minute; the heat of the air was $41^{\circ}\frac{1}{2}$, that of the water 40° . The wind was in the west, so that in the court where the bath stood there was a perfect calm. As the author had some fears of the issue of this experiment, instead of exposing him for a minute naked to the wind before immersion, he was covered with a flannel dress from the air till the instant he descended into the water, into which he was suffered to sink himself slowly, with the bulb of the thermometer under his tongue. The following table exhibits the result :

Immediately on immersion, heat	-	98°	14 min. after, heat	-	$96^{\circ}\frac{1}{2}$
1 minute after	-	$97\frac{1}{2}$	15 ———	-	96
2 minutes	-	97	16, 17, 18, 19, 20	-	96
3 ———	-	97	25 ———	-	95
4 ———	-	98	26 ———	-	94
5 ———	-	$97\frac{1}{2}$	27 ———	-	$93\frac{1}{2}$
6 ———	-	95	28, 29	-	94
7, 8	-	96	30 ———	-	93
9 ———	-	96	31, 32	-	94
10 ———	-	97	33, 34	-	$92\frac{1}{2}$
	-	97			

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He now, we are told, got out into the air very slowly, and stood in it three minutes, the wind *not* blowing on him. He lost one degree of heat at first, which he recovered. He was then put into a warm bath at 90° , which at first *he felt* warm, and his feet and hands were painful : but in two minutes he fell into a very violent shiver, and his heat fell two degrees. The bath was then heated to 95 and 96° , but still he felt cold. It was heated to 99° ; he continued in it five minutes, and his heat was 91° . The heat was gradually raised to 106° , when the sense of coldness of which he had complained at the pit of the stomach gradually went off. Before this Dr. Currie had usually kept him in the warm bath till his natural heat was nearly recovered ; but after being half an hour in the heat of 106° , his own heat was still 93° . He now became sick and very languid, a cold sweat covered his face, and his pulse was very quick and feeble. He was removed into bed, but passed a feverish night, and next day had wandering pains over his body, with great debility, resembling the beginning stage of a fever. By cordials and rest this went off.

This experiment, the author observes, clearly
enough

enough confirms the greater danger of being wet with fresh than with salt water ; but in itself points out nothing certain besides, except that it is not to be rashly repeated. He means, he tells us, to try some of these experiments to a greater extent on the brute creation, when he has procured thermometers better suited to his views. The thermometers he employed had not a sufficient mobility for very nice experiments, and he is aware that in particular instances this may have misled him, though the general results, which is all that is of importance in such experiments as these, will, he hopes, be found just and true.

Towards the conclusion of his paper he offers the following observations on the subject that led to these experiments.

1. It is, he thinks, already well known among seamen, that where there is only the choice of being wet with salt or with fresh water, it is always safest to prefer the first. In the heavy showers of rain, hail, or snow, by which gales of wind are generally accompanied, the men that must be exposed to them, ought, he observes, like Lieutenant Bligh and his crew, to wring their clothes out of salt water.

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2. In

2. In all cases where men are reduced to such distress by shipwreck or otherwise, that they can only choose between the alternative of keeping the limbs constantly immersed in the sea, or of exposing them to the air while it rains or snows, or the sea is at times washing over them, it is, he thinks, safest to prefer a constant immersion; because, in the northern regions, where the cold becomes dangerous to life, the sea is almost always warmer than the air, as the experiments of Sir Charles Douglas show*; and because there is not only a danger from the increased cold produced by evaporation, but also from the loss of heat by the rapid changes of the surrounding medium, as the foregoing experiments point out.

3. Whether, in high and cold winds without rain or snow, and where a situation may be chosen beyond the reach of the waves, it is safer to continue in the air, or to seek refuge in the sea, must, he thinks, depend upon several circumstances, and cannot perhaps be certainly determined. The motives for choosing the sea will, he is of opinion, be stronger in proportion

* See Philosophical Transactions, Vol. LX. p. 39.

portion as the wind is high and cold, and in proportion as the shore is bold.

The foregoing narrative, our author observes, shows that men may survive twenty-three hours immersion in the sea, of the temperature of 38 or 40° , (as great a cold as it almost ever possesses) without food or water, and almost without hope of relief; but that any man, he adds, ever survived an equally long exposure to the higher degrees of cold of the atmosphere, in the same circumstances, does not appear. Though in the case related, immersion in water did not prevent thirst, yet there is no doubt, he thinks, that it alleviated it; a circumstance of high importance, he observes, towards the preservation of life.

In a postscript to his paper, Dr. Currie remarks that he has purposely avoided any reasoning on the causes of the loss of vital heat on the change of media in the experiments recited. It may, he is aware, be supposed that during immersion, the water immediately in contact with the skin having become heated to a certain degree, the naked body, on rising from it into the air, was in fact exposed to a colder medium, and thus the loss of heat, in this instance, produced. His examination of the heat of the water during immersion not having been made

in contact with the body, he does not deny that there is some foundation for the supposition; and the cases, he allows, are by no means exactly parallel between immersion in an open vessel, however large, and immersion in the sea, where the constant undulation may be presumed to occasion a continual change in the surrounding fluid. But whatever allowance may be made for the circumstance mentioned, he is persuaded that the difference between the density of air and water being considered, it is not sufficient to explain the loss of heat in the instance alluded to. The changes of temperature in the living body are governed, he observes, by laws peculiar to itself. He has found, in certain diseases, greater and sudden variations than any mentioned, from applications of cold very gentle in degree, and momentary in duration.

Mr. Hunter, in his “Experiments and Observations on Animals producing Heat,” has objected to taking the heat of the human body by introducing the bulb of the thermometer into the mouth, because it may be affected by the cold air in breathing. This objection our author allows to be founded, if the bulb be placed on the upper surface of the tongue; but if it be under it, and the lips shut, the effects
of

of respiration, he assures us, may be disregarded, as he has found from many hundred experiments. The heat, we are told, may be observed in this way with ease and certainty, by employing thermometers curved at that end to which the bulb is affixed, (the bulb being introduced at the corner of the mouth) some of which have been made for him by Mr. Ramsden, according to a form given, as well as others on Mr. Hunter's plan. From repeated trials it appears to him, that when the usual clothing is on, the heat of the living body may be taken, with nearly the same result and equal certainty, under the tongue with the lips shut, at the axilla with the arm close to the side, and in the hollow between the scrotum and the thigh; but that every other part of the surface is liable to variation and uncertainty. It is evident, he observes, that of these three methods, the first only can be employed when the trunk of the body is immersed in water; and even when the naked body is exposed to the cold air, the first method seems to him the best, the heat remaining most steady under the tongue: the axilla, according to his experience, is the next best in order; and the worst, the lower part of the groin: for the scrotum and the
 parts

parts of generation, he observes, lose their heat on the application of cold more speedily, perhaps, than any other part of the body, the extremities not excepted.

XIV. *An Account of the Quassia Polygama, or Bitter-wood of Jamaica; and of the Cinchona Brachycarpa, a new Species of Jesuit's Bark found in the same Island. By Mr. John Lindsay, Surgeon in Westmoreland, Jamaica. Vide Transactions of the Royal Society of Edinburgh, Vol. III.*

THE tree, which is the subject of this paper, has been long known in Jamaica, and in some other islands in the West Indies, not only as an excellent timber, but as affording an useful medicine in putrid fevers and fluxes. In Jamaica it is called *Bitter wood*; in the windward islands, *Bitter ash*; and in the French islands it is known by the name of *Ecorfier*.
The

The bark has for some time been prescribed by medical practitioners in Jamaica, and considerable quantities of it have been exported to England for the purposes of the brewers of ale and porter. On these accounts Mr. Lindsay has been induced to communicate the present description of this tree to the public.

Prefixing to this description is a short historical account of the tree in question, collected from preceding writers.

The first of these is Sir Hans Sloane, who, in his visit to Barbadoes, having noticed the Bitter wood, has given the following description of it in his Catalogue; “*Melanomma et melanoxylum, arbor laurifolia nucifera, gemmis nigricantibus, Americana:*” and refers to Plukenet’s *Phytographia*, Tab. 205, fig. 3; but the plant there delineated, our author observes, is different from the present.

Dr. Patrick Bröwne, and after him Mr. Long, in their Histories of Jamaica, mention this tree by the names of *Xylopicrum*, *Xylopia glabra*, *Bitter-wood*, or *Bitter Ash*. Mr. Long, in speaking of the *Quassia Amara*, thinks the Bitter Ash of St. Christopher’s is the same, but does not seem to know whether the Bitter Ash has been found in Jamaica.

Dr.

Dr. William Wright, in his Account of the Medicinal Plants growing in Jamaica *, mentions this tree under the title of *Picrania Amara*, a new genus belonging to the class *Pentandria Monogynia*, and says it is used in putrid fevers as an antiseptic, and that less of it will do than of the *Quassia Amara* of Linnæus. Dr. Wright, our author observes, was naturally led to place this tree in the class and order he has done, from finding hermaphrodite flowers and seeds on the same tree ; but at the same time he was aware that this tree has a great affinity to the genus *Quassia*.

The last writer referred to by our author is Dr. Olof Swartz, concerning whom he remarks, that having examined most of the plants in Jamaica, he probably had seen this tree in flower and fruit, as he styles it in his Prodomus, “ *Quassia Excelsa*, floribus herma-
“ phroditis 5dri paniculatis, foliis impari-pin-
“ natis, foliolis oppositis petiolatis, petiolo
“ nudo.”

Mr. Lindsay supposes that no other description of this tree has yet appeared ; of course he had had no opportunity of knowing, at the

* London Medical Journal, Vol. VIII. p. 275.

time his paper was written, that Dr. Swartz, in the same year in which he published his *Prodromus*, communicated to the Royal Academy of Sciences at Stockholm a botanical description and figure of the *Quassia Excelsa*, which the Academy have published in their *Transactions* for the year 1788.

We now come to Mr. Lindsay's Account of this tree, which he describes as being very common in most of the woodlands in Jamaica; and as being beautiful, tall, and stately. He has measured one, it seems, which was an hundred feet in length, and ten feet in circumference.

He observes that the trunk is straight, smooth and tapering, sending off its branches towards the top; that the outside bark is pretty smooth, of a light gray or ash colour, from various lichens; that the bark of the roots is of a yellow cast, somewhat like the *Cortex Simarouba*; and that the inner bark is tough, and composed of fine flaxy fibres; that the wood is of a yellow colour, tough, but not very hard; that it takes a good polish, and is used as flooring; that the leaves are sub-alternate; the small leaves being in pairs, from five to eight, standing opposite to each other on short foot-stalks,
and

and ending with an odd one; that they are of an oblong oval shape, and pointed; the ribs reddish, and the young leaves covered with a fine brownish down; that the flowers come out in bunches or clusters from the lower part of the last shoot before the leaves, and stand on round footstalks; that the flowers are small, of a yellowish green colour, with a very small calyx; and that the male or barren tree produces flowers nearly similar to the hermaphrodite, but which have only the rudiments of a style.

The fruit, he tells us, is a smooth black *drupa*, round shaped, and of the size of a pea. There is but little pulp, and the nut covers a round kernel. These *drupæ*, he observes, are generally three, sometimes two, and often only one, attached sideways to a roundish fleshy receptacle. It flowers in October and November, and its fruit is ripe in December and January.

Except the pulp of the fruit, every other part of this tree, we are told, has an intensely bitter taste. From this quality, Sir Joseph Banks, Dr. Solander, and Dr. Wright, were induced, it seems, to give it the name of *Picrania Amara*. In taste and virtues, our author has found it nearly equal to the Quassia of Surinam,

rinam*, and has been credibly informed that it is sold in London for the *Quassia Amara*, and, he thinks, it may be safely used in all cases where

* From a paper entitled “ of the true *Quassia Amara*, and of the false (*Om den rette Quassia Amara, og om den falske*)” lately published by Mr. N. Tönder Lund, in the Transactions of the Natural History Society at Copenhagen, it would seem that what has been generally imported into Europe under the name of *Quassia Amara*, is spurious. ‘ Mr. Von Rohr,’ says the author of the paper in question, ‘ who in the years 1783, 4, and 5, visited different parts of the Continent of America, and several of the West India islands, and collected many rare plants, has sent to me, among other things, a specimen of the *Quassia Amara*, and with it the following note : ‘ In my whole voyage I saw only a single wild shrub of *Quassia Amara*, and that was near the river Tamaco, in the neighbourhood of St. Martha. The planters in Surinam and Cayenne cultivate it on account of the magnificence of its flowers, and its use. In Surinam, the flowers alone are used as tea. The wood is extremely dear ; and I can with truth say that I know not where I could buy a single pound of it. The stem never exceeds two inches in diameter. Had I been desirous of extirpating this shrub from the neighbourhood of the Tamaco, I might perhaps have got together ten pounds of it. It is certain, therefore, that impostors have sent into Europe, under the name of *Quassia Amara*, the wood of another species of *Quassia*, which has the appearance

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where that drug has been thought proper, whether as an antiseptic, or in cases of weakness in the stomach and bowels. It may either, he observes, be given alone, or joined with the Peruvian bark.

He has seen, he tells us, the happiest effects from the use of this medicine in obstinate remitting fevers from marsh miasmata, in agues which had resisted the use of Peruvian bark, and in dysenteries of long standing. In Jamaica, it seems, it is in daily use in dropsies from debility, either in simple infusion or tincture, or joined with aromatics and chalybeates.

Dr. Drummond, an eminent physician in Jamaica, is said to prescribe it with great suc-

“ pearance of an ash tree, and which is likewise bitter. In
 “ a word, you may be assured that any specimen of Quas-
 “ sia, the stem of which, including the bark, is more than
 “ two inches in diameter, is not the true Quassia.” From
 ‘ this account,” adds Mr. Lund, “ it seems pretty cer-
 ‘ tain, that the pieces of wood which are met with in the
 ‘ shops, and which have more the appearance of timber
 ‘ than of a medicine, are not the true Quassia, but are
 ‘ procured from that species of it which the English call
 ‘ the bitter ash.”—See *Skriver af Naturhistorie-Selskabet*.
 8vo. Copenhagen, 1790. Vol. I. Part 2, page 68.
 EDITOR.

cess in the above cases, as well as in amenorrhœa, chlorosis, dyspepsia, and in that species of pica, called *Dirt-eating*, so fatal to a number of negroes.

The bark of the tree, but especially the wood, Mr. Lindsay observes, is intensely bitter. He has used both in various forms.

The bark, it seems, is difficult to be reduced to powder. The dose, he observes, is from 15 grains to 1 drachm, either by itself, or joined with the Peruvian bark.

Mr. Lindsay has employed the wood as well as the bark of this tree, both in infusion and decoction; for the former he directs the proportions to be from two drachms to half an ounce of the bark or wood to a pint of water; and for the latter the same quantities to a pint and a half of water, which is to be boiled to a pint. Of either of these the dose is directed to be a wine-glass full every three, four, or six hours, according to circumstances.

In certain cases of dropsy, in amenorrhœa and chlorosis, he joins to this remedy aromatics and other medicines; and in worm fevers, the cabbage bark or other vegetable anthelmintics.

Mr. Lindsay gives the following botanical

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descrip-

description of the *Quaffia Polygama* *. This description is accompanied with engraved figures

* As we think it will be a gratification to many of our readers to fee Dr. Swartz's description of the fame tree, under the name of *Q. Excelfa*, we fhall here insert it.

“ *Arbor excelfa.*

“ *Truncus* craffus. *Cortex* cinereus, rimofus.

“ *Lignum* duriffimum, album.

“ *Rami* patentés.

“ *Folia* pinnata cum impari, alterna, fparfa. *Petioli* teretes glabri.

“ *Foliola* petiolata, 4-6juga, oppofita, elliptica, acuminata, integerrima, nervofa, venofa, glabra, confiftentia.

“ *Petiola* partiales breves, teretiufculi, glabri.

“ *Racemi* axillares, compofiti, paniculati, ramis dichotomis patentibus, diffufis, multifloris.

“ *Flores* parvi, albidi, polygami, mafculis et hermaphroditis in eodem racemo.

“ *MASC.*

“ *CAL.* 5-phyllus. *Foliola* conica, dentiformia, minuta.

“ *COR.* *Petala* 5 fub receptaculo inter dentes calycis inferta, oblonga, adfcendentia.

“ *STAM.* *Filamenta* 5 a latere receptaculi exferta, fubulata, adfcendentia, petalis longiora, villofa. *Antherae* fubglobofæ, bivalves.

“ *PIST.* rudimentum.

“ *HERMAPHROD.*

“ *CAL.* et *COR.* ut in mare.

“ *Filamenta* 5 breviora. *Antherae* fertiles.

“ *PIST.*

figures of the leaves and fructification, for which we must refer our readers to the work itself.

“ Arbor excelsa sæpe centum pedes alta.
 “ *Caudex* spectabilis, erectus, glaber. *Cortex*
 “ cinereus in Epidermide, interne albido fla-
 “ vescens, tenax et ex fibris lentis confectus.
 “ *Ramuli* alterni teretes.

“ *Folia* sub-alterna. *Foliola* 5—10 jugata
 “ impari-pinnata, opposita, oblonga, obtuse-
 “ acumi-

“ *Pist.* *Germina* 3. contigua, receptaculo tumido infi-
 “ dentia, globosa, glaberrima. *Stylus* staminibus longior,
 “ 3queter, 3-fidus. *Stigmata* simplicia.

“ *Per.* *Drupæ* tres, globosæ, uniloculares, bivalves, re-
 “ ceptaculo ampliato, hæmisphærico insidentes, distantes,
 “ magnitudine pisi majoris.

“ *Sem.* *Nuces* solitariæ, globosæ, glabræ, nauco fra-
 “ gili.”

From this description, Dr. Swartz observes, we may perceive the near affinity of this tree to the genus of *Quassia*. It approaches, he thinks, nearer to the *Q. Simarouba* than to the *Q. Amara*; but differs from both in being without the *squamulæ nectarii*, which are placed under the germen on the basis of the filaments, and in having in general five, and sometimes, though rarely, only four stamina instead of ten. These two characteristic differences, however, are not, in his opinion, sufficient to constitute a distinct genus.

“ acuminata, glabra, integerrima, venosa, breviter petiolata. *Petiolus communis* subtus nudus. *Stipulae* laterales parvæ, lanceolatae, erectæ, deciduæ.

“ *Inflorescentia* cymosa. *Pedunculi* solitarii, teretes, plerumque nudi, in plurimos ramulos divisi.

“ FLOS MASCULUS.

“ *Cal. Perianthium*, infernum, minimum, ex squamulis quatuor compositum. *Foliolis* ovatis persistentibus.

“ *Cor. Petala* 4, oblonga, obtusa, æqualia, sessilia, suberecta. *Nectarium* ex squamis 4 ovatis, villosis, basi filamentorum interiori insertis.

Dr. Swartz agrees with Mr. Lindsay in his account of the intensely bitter taste possessed by every part of the tree; and observes that the negroes have recourse to an infusion of it in rum in some affections of the stomach. He likewise mentions its use as an anthelmintic. His figure of the plant agrees with that given by Mr. Lindsay.—See Kongl. Vetenskaps Academien nya Handlingar, Tom. 9, p. 302. 8vo. Stockholm, 1788. EDITOR.

“ *Stam,*

“ *Stam. filamenta* 4, 5, 6, filiformia, sube-
 “ recta, æqualia, corolla longiora, receptaculo
 “ inserta. *Antheræ* simplices erectæ.

“ FLOS HERMAPHRODITUS in diversa Arbore.

“ *Cal. et Cor.* ut in mare.

“ *Stam.* ut in mare, sed filamenta corollam
 “ vix superant.

“ *Pist.* Receptaculum carnosum, orbicula-
 “ tum, elevatum, germine latius. *Germen* sub-
 “ ovatum, ex duobus, tribus, raro quatuor
 “ compositum, leviter coherentibus. *Styli*
 “ crassiusculi, erecti. *Stigmata* 2, 3, 4, fimi-
 “ plicia, declinata,

“ *Per.* Drupæ 2, 3, 4, globosæ, laterales,
 “ distantes, nigerrimæ, nitentes, receptaculo
 “ insertæ.

“ *Sem.* Solitaria globosa, unilocularia, nauco
 “ fragili tecta.”

Mr. Lindsay next gives an account of the *Cinchona Brachycarpa*, a new species of *Cinchona* growing in Jamaica. This tree was first discovered by him in November, 1784, on

the north-east side of the hill that overlooks the works of Mountain Spring estate, in the parish of Westmoreland, and afterwards on some of the mountains near the Moreland estates in the same parish. As it has hitherto been unknown to naturalists, he has given the following botanical account of it, which in the work itself is illustrated by an engraving.

“ PENTANDRIA MONOGYNIA.

“ *Cal.* Perianthium monophyllum, superum,
 “ campanulatum, parvum, 5 dentatum, per-
 “ sistens, dentibus acutis, erectis.

“ *Cor.* Monopetala, infundibuliformis. *Tu-*
 “ *bus* cylindraceus longissimus. *Laciniis*, an-
 “ gusto oblongis, patente revolutis.

“ *Stam.* Filamenta 5, interdum sex, fili-
 “ formia, tubo longiora, in fauce tubi inserta.
 “ *Antheræ* lineares erectæ.

“ *Pist.* Germen ovatum, inferum. Stylus
 “ filiformis longitudine staminum. Stigma
 “ crassiusculum ovatum simplex.

“ *Per.* Capsula oblongo ovata magna, calyce
 “ coronata, bipartibilis, dehiscens in duas
 “ partes

“ partes interius dehiscentes, dissepimento parallello.

“ Semina plurima, parva, compressa, marginata.

“ Arbor erecta 20 pedes alta, ramis patentibus. Cortex fusco-cinereus, sapore primo dulci, mox amarescente.

“ Folia opposita, oblongo-ovata, integerrima, glabra, subtus venosa, petiolata. Petioli breves, supra fulcati. *Stipulæ* laterales, ovato-lanceolatæ, integræ, caulem arcte amplexantes.

“ *Inflorescentia* paniculato-corymbosa, terminalis. *Pedunculus* plerumque brachiato-ternatus, teres, nudus. *Corolla* glabra, pallide rubra vel carnea, tres circiter pollices longa.”

Mr. Lindsay has met with this tree only in three places; in the inland, woody, and mountainous parts of Westmoreland and Hanover parishes. The tallest he has ever seen was about thirty feet high, and 7 or 8 inches in diameter. The branches, we are told, are few and spreading. The leaves stand in pairs, are smooth and shining, and are very like those of the *Portlandia grandiflora*. The flowers grow in pretty large clusters, on the extremities of
the

the branches; and have nearly the beauty and appearance of the common honey suckle, but are rather larger.

The seed-pod, he observes, is larger than in any other plant of this genus; is oval, adorned with a calyx of a firm consistence, somewhat striated, and black-coloured; and when ripe, splits in two, and discharges a number of small, flat, brown seeds, with a membrane nearly round the edges.

The trunk and branches are described as being of a brownish gray colour, with a few superficial furrows, and cross cracks like the Peruvian bark. The bark of the trunk, we are told, is pretty thick; and when wounded, exudes a small quantity of a milky juice. The bark, when dried, is of a purplish brown colour on the inside. It is fibrous, and more difficult to pulverise than the Peruvian bark. The powder is of a purplish gray colour, and tastes sweet, then bitter and astringent.

This species, our author thinks, might be used as a substitute to the Peruvian bark; but unfortunately the tree is scarce and small, and enough of it cannot be had, at least in those parts of Jamaica in which he has found it growing. This loss, he observes, may be compensated

penfated by the abundance of the Cinchona Caribæa *feu* Jamaicensis, described by Dr. Wright in the 67th vol. of Phil. Transf. and which, he is assured, has been found to answer all the purposes of the Cinchona Officinalis.

He does not pretend to hold up this new bark as superior, or even equal to the Peruvian. He has given it, however, in the slighter cases of intermitting and remitting fevers, with good effect; and in a few instances, it produced a cure, where the patients had taken the common and red barks to no purpose.

To persons afflicted with intermittents, he gives of the powder from twelve grains to thirty every hour, or every two hours in the absence of fever. By this means, a stop has been put to the fever, and the patients have recovered. He has also administered this new bark in dyspepsia, both in powder and infusion, and found that it sat easy on the stomach, and promoted appetite. He had shewn this species of Cinchona to Dr. Wright, before he left Jamaica, and gave him a little of the bark. The Doctor gave it in powder to a patient, but found it emetic, which could only happen, our author thinks, from some peculiarity of
con-

constitution*. In a letter to Mr. Lindsay, he intimates, that probably the same thing would happen, with the bark of every other tree of this genus, if given before it is completely dried.

Mr. Lindsay's paper closes with some few remarks on the red Peruvian bark.

This substance, when genuine, and given briskly in pretty large doses, will, he observes, in particular cases, occasion a degree of anxiety, depression, giddiness, and faintness, that are alarming to the patient and his friends, and perhaps, if not timely attended to, might be of serious consequence. This, he adds, only happens in certain constitutions, and in weakly habits, or those rendered so by disease.

This effect of the red bark, so far as he knows, has not been taken notice of by any writer, and when it occurs in private practice, is either not attended to, or imputed to some other cause. Mr. Lindsay gives the following extract of a letter from James Graham, Esq. a respectable inhabitant of Jamaica, which, he thinks, places this circumstance in a strong light.

* See London Medical Journal, Vol. VIII. page 241.

Mr. Graham, after having been afflicted with a fever and ague for several months, at length took the red bark in doses of thirty grains each. “ On taking the first,” says he, “ I instantly perceived an unusual pungency “ on my tongue. After the fifth, I felt an “ anxiety about my breast with faintishness ; “ and had hardly done swallowing the sixth, “ when I was seized with giddiness, an universal tremor, and a profuse cold sweat. A “ little wine, which was given me in this situation, relieved me considerably. In about “ an hour, all the alarming symptoms disappeared, but I remained weak and languid. “ From that day, however, the fever left me, “ and did not return till several months after, “ when it was brought on by a cold, and was “ removed by the bark administered in the “ same manner, and attended nearly by the “ same symptoms as before.”

XV. *Extract of a Letter from the Reverend Charles Perceval to Robert Perceval, M. D. and M. R. I. A. Vide Transactions of the Royal Irish Academy. Vol. IV. 4to. Dublin:*

THIS letter contains an account of Jane Bern, a girl, eleven years old, low in stature, but of an healthy appearance, whom Mr. Perceval accidentally met with in the charter school at Dunkerrin, in the King's County; and whose eyes are constructed in an extraordinary manner.

Their motion, instead of a regular horizontal one, from left to right, and *vice versa*, is tremulous in all directions, and partly perpendicular, with a prominent motion of the globe of the eye; what lateral motion the eye is capable of is short, interrupted, and gives that organ the appearance of being bound by ligaments, from which it struggles to get free: The child cannot easily look upwards, or see any object placed above her eyes; and when she reads, which she does without any hesitation

tion or difficulty, she reads perpendicularly from the bottom upwards, and holds the book accordingly.

The whole globe of the eye is of a reddish cast, the white is streaked with striæ of a fainter red; the iris is of an uniform deep red, approaching to brown; both her eyes are weak and watery: and, when turned from the light, glow with a more fiery and vivid colour than when exposed to it.

Mr. Perceval observes, that although she reads very well, and seems possessed of a moderate plain understanding, she is unable to write, knit, or spin. She has remarkably fine hair, it seems, of the colour of flax, but considerably whiter.

The mistress of the school informed him that the child was sent to her from a nursery in the county of Longford, in the North of Ireland.

Mr. Perceval was not informed whether any more of her family had these peculiarities.

The singularity of this case seems to consist in the motion of the eyes; for the redness of the iris, and the white colour of the hair, evidently show that it must be classed with those
instances

instances of *lufus naturæ* *, which depend on a white colour of the pigmentum of the eye, corresponding with the colour of the hair, and which have been so ably described by the late Mr. John Hunter; and likewise by Dr. Blumenbach †.

* For the application of this term here we have the authority of Mr. Hunter, who, in his *Essay on the Colour of the Pigmentum of the Eye in different Animals*, observes that “ the variation of colour appears most remarkable when a white starts up, either where the whole species is black, as in the crow or blackbird; or where only a certain part of the species is black (but permanently so), as a white child born of black parents; and that a perfectly white child, whose hair is white, and who has the pigmentum also white, though born of parents who are fair, should as much be considered as a play of Nature as the others. All those *lufus naturæ*,” he adds, “ such as the white negro, the pure white child of fair parents, the white crow, the white blackbird, white mice, &c. have likewise a white pigmentum corresponding with the colour of the hair, feathers, and skin.” See *Observations on certain Parts of the Animal Oeconomy*. By John Hunter. 4to, London, 1786, page 204. EDITOR.

† *Vide* Jo. Frid. Blumenbachii *de Oculis Leucæthiopum et Iridis motu Commentat.* 4to. Goettingæ, 1786.

XVI. *An Attempt to determine with Precision such Injuries of the Head as necessarily require the Operation of the Trephine.* By Sylvester O'Halloran, Esq. M.R. I. A. Honorary Member of the Royal College of Surgeons in Ireland, and Surgeon to the County of Limerick Hospital. From the Transactions of the Royal Irish Academy, Vol. IV.

Non fingendum, aut excogitandum, sed inveniendum, quid natura faciat aut ferat. BACON.

WERE we to estimate the lights thrown on particular disorders by the number of eminent men who have treated of them, we should conclude that those produced by external injuries of the head must be best understood, as from the days of Hippocrates to our own they have been considered with most particular attention. But however great our obligations to our ancestors, and to many illustrious and learned moderns and contemporaries may be, yet our knowledge of this subject, so interesting to mankind, is still incomplete. The various

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disorders subsequent to injuries on the head have by no means been discriminated with sufficient precision; nor have their symptoms or modes of treatment been clearly ascertained; even the use of the trepan is now more indefinite than it was a century ago. The late Mr. Pott, as diligent and accurate an observer as any age or nation has produced, complains “ of the darkness and obscurity of this part of “ surgery.”

Enabled by close and diligent observations, and by extensive practice in this line for above thirty years, I have ventured, under the auspices of the Academy, to determine a question, perhaps the nicest and most involved in surgery.

The operation of the trepan is very ancient; but being confined to narrow limits, was seldom performed without the greatest caution and circumspection; for it was interdicted over or near the sutures, near the os squamosum, and on or very near the occiput. This well explains an anecdote in our early history; for Connor Mac Neassa, King of Ulster, that generous protector of the literati of his days, and cotemporary with Julius Cæsar, having his skull fractured in battle, his first surgeon, Finighin, refused to apply the trepan till his safety was

was guaranteed by the nobles of the country, in case it did not succeed.

But the experience of the last and present centuries has proved, that there are very few parts of the head on which the trephine may not be applied when necessary. However, this information, in itself so interesting, has by no means answered the ends that should be expected from it; for instead of our determining, or even attempting to limit the cases to which it should be confined, it has been since adopted in almost every severe injury of the head, accompanied with untoward symptoms. To point out with perspicuity and precision the cases in which it can alone be useful to the patient, is the object of this paper. These observations may be arranged under two articles—Fractures of the Cranium, and deposits on the surface of the Brain or on its Membranes. Yet, even in the case of fractures, long experience has convinced me that many of them require no operation. As this is an object of great moment, I shall be as clear and concise as possible. To this purpose, I have selected three out of a great number of cases; and the rather because each had its particular symptoms, though all tending to the same point.

Case I. Mrs. Grogan fell from a window into the street, and received a violent contusion on the front of the coronal bone. I saw her the next morning, and found a considerable tumour, which to the touch seemed to contain some fluid; but as I had seen many similar ones subside in four or five days, by the use of compresses wet in spirits, I treated this in the same manner. The swelling, however, remained, and in five days I proposed opening it, which she would not permit. The sixth day she again sent for me; the tumour was still the same, but the fluctuation not so sensible. I laid open the part, and a good deal of coagulated blood was discharged. She complained all that and the next day of pain, and a thin bloody sanies came from the wound. I found not only the bone bare, but a considerable fracture, with some depression. I pressed with my finger the sides of the bone, but it remained firm to the touch, and she felt no uneasiness from it. I kept the wound open for some days, and finding no alarming symptoms, suffered it to heal, which it did by the end of the month. I recommended her to keep the part covered for some time, on account of the thinness of the cicatrix. This she neglected. In some days after, leaning over a gar-

a garden wall, with a smart wind in her face; she was seized with a violent pain, and imagined the wind was piercing into her head. She slept little; and was the whole night in a fever. Next morning I found the forehead greatly swelled, and let out a considerable quantity of matter. In some time it got well; she had it covered with adhesive plaster, and never after complained.

Case II. Samuel Haste received a wound on the upper part of the right parietal bone, of two inches long, with a loose bone and fracture. Though the fracture could not admit of a doubt, yet there seemed to be but little depression, and the sides of it were firm to the touch. I saw no reason for the operation at present, but carefully attended to the symptoms. In the space of four weeks the bone became covered; the wound healed, and he has since enjoyed perfectly good health.

Case III. M'Namara received a wound on the forehead, and near the left side of the frontal sinus. In a few days after he was brought to the hospital; his pulse was full, and he complained of a great head-ach. Upon examining through a small aperture, I perceived the bone bare and rough, and concluded there was a

fracture. I removed the integuments, and found the bone fractured near two inches in length, but still the parts were nearly upon an equality, and the bone firm to the touch. As he bled a good deal I did not direct venæsection, but ordered some powders of nitre and jalap, and the saline mixture. His head-ach was not abated next morning, so I directed a large blister to his back, which I desired should remain on for twenty-four hours. This removed the head-ach, and the wound went on well. In five days after, he complained of violent shiverings, and I should have concluded them to be the precursors of matter forming on the brain, had I, in the course of many hundred fractured skulls, seen a similar instance; but I had not. He was not trepanned; the bark, in some time, removed these complaints, and he is again abroad.

Having thus, I apprehend, clearly proved, that many fractured skulls do not demand the trepan, it remains that I should clearly discriminate between those and other seemingly slight fractures, which absolutely require it. In the course of my practice I have constantly observed, that fractures of the cranium are more extended in the inner than the outward table,

table, and of course, that simple fractures, such as I have described, may do considerable damage within, whilst all is fair without. Fractured skulls in general (with a very few exceptions) are attended with no very alarming symptoms for many days. They are free from fever and inflammation; nor is reason in the smallest degree impaired. But in the course of ten, twelve, or fifteen days, if any pressure rest on the brain, the patient becomes heavy; grows drowsy, comatose, and sometimes convulsed. The first appearance of any of these symptoms is the critical time of alarm, and the operation should be immediately proceeded to.

Case IV. J. O'Mara received a violent blow over the middle of the left parietal bone. It was for a good many days dressed by a person in the neighbourhood, but not appearing to mend, I was applied to: I found a seemingly slight contused wound, with a bare bone; and seeing him heavy and drowsy, I concluded a pressure on the membranes of the brain. As he appeared more stupid the next morning, I removed the scalp, and found underneath a considerable depression. The operation immediately followed the incision; the depressed part

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was raised, some small splints removed, and he is, at this day, a healthy man.

Case V. William O'Neil received a very extended wound on the superior part of the left parietal, which bared the bone for near two inches, with a violent contusion about the center of that bone. The wound was dressed, and every precaution taken to prevent fever and inflammation. He went on tolerably well for twelve days, except that the wound on the parietal never exhibited a pleasing aspect. About this time I perceived him to grow heavy and drowsy. I more narrowly inspected the head: but though the bare bone became sensibly discoloured, and though I expected exfoliation would follow, yet I was well convinced that no fracture was there. I interrogated him closely. He told me the least noise disturbed him, and he imagined that sound was conveyed through the side of his head, as well as through his ears. I now more narrowly inspected the contusion on the side of the head, which had hitherto been dressed with a compress dipped in spirits only. I thought I felt an obscure fluctuation: at any rate the symptoms determined me to open this part. But what was my surprise when I found the bone underneath not
only

only fractured, but beat into small pieces, at the point of percussion. I trepanned on the spot; removed bits of bone, and raised others to their level. After this every thing went on well, except the wound at top, which threw off several exfoliations, and remained open many days after the fractured parts healed. This man became as stout and well as possible.

After these proofs, that even in many fractured skulls the operation of trepanning may be dispensed with, what pretence can we offer for trepanning in wounds of the cranium inflicted with incisive instruments? I know of none that can justify so violent an outrage to nature, except symptoms of extravasation appear, which I believe very seldom happen where the skull itself is injured.

Case VI. Edward Power received a desperate wound of a back sword, extending from the top of the coronal bone to the orbit of the left side, forming an extended and frightful chasm, in which were included the bone, membranes, and brain. It bled considerably, as may well be supposed. He remained exposed to the open air for near three hours after, and had not so much as a bit of rag to cover it. Fever and inflammation of the brain might reasonably

sonably be apprehended; yet, by a couple of bleedings, and some other antiphlogistics, the man was completely cured in five weeks, without exfoliation or the smallest operation. To this I shall add an instance given by La Motte*, of a man who received a blow of a sabre on the right parietal bone, which divided the longitudinal sinus and the left parietal, extending almost from ear to ear; and yet this man recovered without any operation.

Having disposed of the above very interesting questions, we shall now remark on such fractures as necessarily require the operation in the first instance. These are fractures accompanied with depression, with or without wounds. For, not to advert to the restraint such pressure must necessarily cause to the motion of the brain, sufficient in itself to produce fatal effects, if the depressed parts be pointed and sharp, as is mostly the case, acting against the uniform pulsation of the brain, the membranes must in some time be cut through, and the brain itself wounded; and whilst this tragic work is going on, we have no symptoms to indicate the approaching danger till it is past remedy. The

* *Traité complet de Chirurgie*, t. iii, p. 343.

two following instances contrasted will explain and justify this position.

Case VII. A girl about seven years of age received a severe fracture, with profound depression, on the left parietal bone; the integuments were entire, the girl quite composed and sensible, but the depression was so deep that it could contain a very small egg. Such was her situation when brought to me, half an hour after the injury. Seeing that it would require three or four crowns of the trephine to raise this extended fracture, I requested of Mr. Wallace, a military surgeon, and Mr. Pierce, to assist me in this charitable work. I removed all the integuments, wiped away the blood, and whilst these gentlemen with their fingers made compressions over the bleeding vessels, I began to operate on the inferior parts of the bone. I then commenced a second on the upper part, and in a line with this; but the two elevators, though acting at the same time, had no effect on the depression. Two more crowns were then applied to the sides of the bone, and parallel to each other. Four levers acting in conjunction, it astonished me to see with what a sudden spring the depressed parts resumed their former station. Notwithstanding the great
extension

extension of this fracture, the loss of covering, and of the bone itself, by four crowns of the trephine, this girl never after had the smallest untoward symptom.

What must have been the event of this case if not speedily relieved, the following will show.

Case VIII. Patrick Casey, aged about eighteen, was thrown from his horse with great force; the consequence was a fracture in part of the coronal bone, with a considerable depression. I was requested next morning to visit him; and seeing his situation, I was just proceeding to the operation, when a surgeon of the city appeared, who said he was employed by Casey's master to attend to him. The depression was so considerable, that the lower edge of the fracture was beaten under the uninjured part; here I intended my operation, in order the more speedily and effectually to disengage the fracture. But this was opposed; it was observed, that trepanning so low down would leave a great deformity, and that the end proposed would be as well answered by perforating the bone at top. I opposed it in vain. I saw that the friends of the boy, who were present, as well as himself, wished to have it done so. I trepanned, introduced the elevator, but could
make

make no impression, as the depressed parts were beyond the reach of the instrument. I now proposed a second opening on the lower edge of the fracture, the first being impossible to answer the end proposed. This was not agreed to. It was observed, that an opening being made, no deposit could be formed, and that the depressed part would become gradually detached, and probably come away, which has sometimes happened. The fore was carefully dressed, but the dura mater never assumed a right aspect; however his spirits were good, and he had no complaint but what arose from the fore itself. The discoloration of the dura mater made me try, on the 15th day, and again on the 17th, the effects of the elevator, but in vain. He was up every day. The 24th, looking out of a window for some time, he perceived a slight chilliness; at bed-time he grew hot and feverish, was very restless, and had a strong shaking fit. This alteration was ascribed to his making too free with himself. But I saw and dreaded the consequences. I told the people that these alarming symptoms proceeded not from cold, but from the constant and uniform pressure on the brain; and that if any chance remained for his recovery, which I much doubted,

doubted, it must be by a speedy removal of the cause; and if they consented I would not shrink from this disagreeable business. I directly made the second perforation, and soon raised the part; but, alas! the mischief had been already completed. That day and the next he seemed a good deal lighter: but, about ten at night of the second day, his neck was observed to be covered by a bloody ichor issuing from the sore. Next morning his pulse was more languid, and the dura mater quite black. Towards night the bloody ichor increased; he became slightly convulsed, with stupor. About ten the substance of the brain poured forth, and he expired next morning.

Fractures with a depressed bone always require the operation; and though some cases may be adduced where an happy recovery has succeeded without this adoption, yet it must arise from particular circumstances by no means to be depended on. For instance, the depression may be uniform, so that no point of the fracture may press on the brain. In such an instance, no doubt things may come about without trepanning; but have we any symptom to determine this point? None that I know of. Numbers I have seen perish by neglecting the operation,

ration, because they found themselves free from pain and fever at the beginning. As, then, trepanning is a safe operation in any tolerable hands, no consideration should make the surgeon decline or procrastinate it. He has already seen the happy consequences of it when performed in the first instance. He will now see what may be hoped for from nature, even in the most deplorable cases, from neglect or delay.

Case IX. I was sent for to Patrick Kelly, who had received repeated blows on the left parietal bone, which produced a very extended fracture, with a slight contused wound of the integuments. He had been attended for some time by a young man in the neighbourhood. In the course of about ten days he became heavy and drowsy; the complaints increased, and when I was sent for he was comatose, languid, and oppressed; so much so, that I apprehended any operation useless, and had some thoughts of immediately returning. But reflecting on the great resources of nature, and that it would be in some sort criminal not to discharge my duty, I removed the integuments on the interior part, where the depression was greatest, and directly applied the largest crown I had.

I had. On removing the piece I introduced the elevator, raised the depressed parts, and was satisfied, from the extent of the injury, that many pieces of bone would come away. Immediately after this he opened his eyes, knew me, and spoke. I left directions for managing the dressings, and ordered some medicines of the nervous tribe. In eight days after I again visited him, and found a considerable part of the bone loose. I made a slight incision over it, and extracted it with my forceps. The next day he found a weakness of the neck and arm of the opposite side, and by night it attacked that entire extremity. In a few days after two more pieces of bones were removed, and again another. He laboured under this partial paralysis for about fifteen days, and then gradually recovered.

Case X. I visited Patrick Hayes, who, thirteen days before, had received a blow which had made a profound depression on the posterior and near the superior part of the right parietal bone, and very near its junction with the occiput. It was attended with no wound, but a small perforation scarce sufficient to admit the point of a probe. In some days symptoms of a depressed bone came on. I found the man
with

with a slow, weak, but regular pulse. He was quite comatose, and could not articulate. Upon passing a fine probe through the little perforation, I found the bone had been crashed into small bits, and was for some time at a loss what to do, on account of the situation of the man and the nature of the injury. I declared to his friends that I strongly apprehended the case mortal, but would do what depended on me if they consented. Upon removing the scalp, the bone had been so far beat in that I concluded I should find the membranes cut through. Could I raise any part of the fracture I saw to a certainty I could remove the whole, the injury being confined to the circumscribed part. With my forceps, probe, and elevator, succeeding each other, I was fortunate enough to remove one splint. This afforded me more room; and so, by degrees, and with some patience, I cleared the dura mater of all incumbrance, without recurring to the trephine. It was greatly depressed, and though wounded in two or three places by the point of the bone, yet no where cut through, but discoloured and blackish. He opened his eyes after this, and appeared lighter. Antiseptics and the bark were not omitted, as well as a generous diet;

that is to say, strong seasoned broths, sago, or gruel with wine, and wine whey, at times. In some time the dura mater rose to its natural height, the diseased parts sloughed off, it gradually assumed its natural colour, and he recovered.

The next species of injury that requires trepanning is, deposits of matter on the membranes of the brain, or on its surface. On this very obscure and truly lamentable malady, my esteemed friend, Mr. Dease, of the Royal College of Surgeons, has thrown much light, in a late ingenious treatise *. It is beyond doubt a complaint of a most serious and alarming nature. In the course of many years practice, and painful observations, I cannot give myself credit for a single cure I ever performed in this way, when the symptoms of deposit were formed; and whether the patient was or was not trepanned, the scene closed with death! However, this ill success I complain of should not deter others; for in this case the operation is indispensable; instances of recovery from it can be adduced; and when a practitioner makes a fair prognostic he cannot be censured.

* Observations on Wounds of the Head.

This complaint is mostly confined to wounds of the scalp and pericranium, but particularly of the latter. The symptoms of matter forming under the cranium commence generally, about the eighth day, sometimes later, but seldom exceed the fifteenth: these are, sickness at stomach, head-ach, a smart fever, and strong shaking fit; the wound assumes a paler colour, the discharge is thin and pale, and the pericranium becomes more and more detached from the skull. These are the unequivocal signs that matter is formed on the cerebrum, or on its covering; and in these cases, however deplorable the event, there is no resource but in trepanning. It is a fact well known to persons of extensive practice, that though this matter begins under the immediate point of percussion, yet that it extends much farther. To operate, then, to any effect, I would recommend the application of more than one crown of the trephine. For instance, the first perforation being made, I would immediately proceed to a second, including a segment of the former circle in it, by which means the issue of matter is more facilitated, and if it should be found necessary to open the dura mater, it will be done

with greater effect by extending the wound of it.

Concussions of the brain are generally supposed to require the trepan. Dionis, an able writer of the last century, judges that the loss of sense and memory, immediately succeeding a violent injury, are sufficient motives to proceed directly to the operation, and he illustrates his position by a case in point*. Mr. Pott, though he very judiciously points out what can be effected by the operation, namely, the raising of depressed bones, or the issue of blood or matter, yet he becomes an advocate for it on stupors immediately following a hurt. “ For
 “ though it may be resolved into symptoms of
 “ concussion,” says he, “ yet extravasation
 “ may so speedily follow the first shock, as to
 “ carry all the appearance of the first, whilst
 “ the second is the real cause.” But to a certainty extravasations of blood, matter, or water, (for I have met with them all) do not immediately, nor for some days after, produce stupor or insensibility. Fractures with considerable depression, extravasations, &c. show no alarming signs for many days; but stupor *immediately* follow-

* Cours d’ Operations de Chirurgie, p. 510.

ing a fall or hurt is an unequivocal sign of concussion, and of concussion only. Not but that I have met with three cases, and each of them mortal, where the symptoms of concussion immediately appeared, though in each the fracture and depression were evident. But this only proves that in each the injury was so great that the yielding of the skull was not sufficient to destroy the force of motion.

In cases of death, after injuries of the head, where concussion was the cause, I have invariably observed the following appearances:—the pericranium and skull were injured; the dura mater adhered to the latter; there was rarely any extravasation of blood, and this but slight, and out of the reach of any instrument. In a word, I could get no information, except that in those who died soon after the accident I have sometimes thought the brain did not completely fill the cavity of the cranium. To this let me add, that instances can be adduced where leaps or falls from an high place, on hard ground, where the head has been far removed from the seat of the injury, have produced all the symptoms of concussion. I well know that many have been trepanned, and great cures boasted of in these disorders; but sure I am, that whatever merit they

might justly claim, by endangering nature's endeavours and protracting recovery, they had none with respect to the merit of the case.

I divide concussions of the brain into three classes. 1. Mortal ones. 2. Where there is recovery with insanity. And 3. Where there is perfect recovery. From what has been said it is evident that I had early made up my mind with respect to trepanning in this complaint: I have singled out two striking cases in point in support of my opinion.

Case XI. A gentleman was thrown from his horse, and found speechless and senseless; and in this condition was brought home. A physician was sent for, who immediately let blood; but finding the comatose indisposition continue a fracture was suspected, and I was called upon. The integuments were very thin, he had been close shaved, and I could not be well decided. After the most critical investigation I was convinced there was no fracture; besides, his symptoms were the reverse of those attending a fracture. Bleeding, blisters, sinapisms, &c. successively succeeded each other; but he gained no ground. He remained for ten days after in the same situation, with frequent moanings, and without being capable of uttering a word, though he took
nourishment,

nourishment, drink, and whatever was offered him. About this time dawns of reason and symptoms of convalescence appeared, and in a very short time he was restored to perfect sanity of mind and body, and lived for many years after.

Case XII. Mr. M. was thrown from his horse, and pitched on the crown of his head on a stone pavement. He also received a contused wound from a kick of the horse on a posterior part of the right parietal bone, which denuded the bone. He was taken up senseless and speechless. He was profusely bled, and suffered other evacuations in the course of the two succeeding days, without the smallest amendment. I was then sent for ; and from the above recital of the case was satisfied that there was no fracture. The pulse, as in such cases, was slow and full ; he moaned much, and frequently put his hand to his head. Experience had taught me that profuse evacuations answer no good purpose in these maladies, so I gave him medicines of the nervous tribe, with a cold infusion of the bark ; and for his diet, veal broth, beef tea, and sometimes wine whey. In two days after his pulse became firmer, but his restlessness and anxiety increased towards evening. About one next

N 4
morning

morning he grew perfectly outrageous, so as with difficulty to be kept in his bed, and I was called up. On reflection, nothing seemed to me so proper to calm these symptoms as sedatives. I sent immediately to the apothecary's, gave him myself a dose ; and finding him calmer, in half an hour, I left him, with directions that at what time soever it returned the dose should be repeated. At five in the morning the medicine was again given. He remained composed, was much better, and visibly clear in his intellects. In a word, I left him perfectly restored the third day after ; the wound in the head healed in some days after, and he recovered.

From the preceding facts and observations the following propositions may be deduced.

1. That many fractures of the skull do not require the application of the trephine.
2. That some apparently slight fractures do absolutely require its application ; in such cases the inner table of the skull is generally more hurt than the outer, and bad symptoms do not arise till towards the end of a fortnight after the injury.
3. That fractures with depression require the application of the trephine, and that from such there have been some surprising recoveries.
4. That

4. That deposits of matter on the membranes or surface of the brain require the trephine, though it seldom proves successful.

5. That concussion of the brain, characterised by *immediate stupor and insensibility*, does not require the trephine, unless accompanied with evident depression of the skull or extravasation, neither of which produce bad symptoms for some days after the accident which has given rise to them.

XVII. *Account of a fistulous Opening in the Stomach; by George Burrowes, M. D. M. R. I. A.*
Vide Transactions of the Royal Irish Academy,
Vol. IV.

THE person whose case is here related and who had been an inferior officer in the service of the East India Company, received, we are told, in a voyage to India, a wound from a blunt-pointed wooden instrument in the abdomen, between the cartilage of the eighth rib, on the right side, and the umbilicus, penetrating the stomach; much inflammation and fever followed the wound, and

continued

continued a very considerable time. When the inflammation subsided an opening remained, through which, when the tent was withdrawn, a fluid of a whitish colour flowed; the sides, instead of closing, turned in, and no union could, by any means, be induced. The man was therefore advised to keep the opening constantly plugged up: this he did for the remainder of his life, never withdrawing the plug but to gratify curiosity or to replace it with a new one. The opening was about the third of an inch in diameter. The plug he used was generally cotton wick twisted hard.

It was twenty-seven years from the time he received the injury to that at which our author first saw him. This was about November, 1790, when he was admitted into the House of Industry at Dublin. He had then attained his sixty-fifth year, and was, to all appearance, we are told, a healthy man, regular in his bowels and in all his secretions. He had been, it seems, extremely drunken and dissipated, and was, even at that time, frequently intoxicated; yet he never complained of any inconvenience from it, but returned the next day to occupation or debauch with vivacity and with strength. He had procured a livelihood for

for a few years before Dr. Burrowes met with him by teaching French in Dublin, being too old for his former occupation.—To this account our author adds, that in a voyage subsequent to that in which the patient received the wound, he was severely afflicted with scurvy, in common with several others in the ship, and in consequence of that disease lost all his teeth. All the alveolar processes were absorbed, notwithstanding which he contrived, it seems, to break his food, his gums being much hardened, and ate with considerable appetite and a good digestion.

On removing the plug, after he had taken milk, a part of the milk, we are told, quite pure, escaped through the opening; and the patient observed that when his stomach was empty of meat, and he took the plug out, a whitish fluid adhered to it that tasted sweet. He never felt any pain in the opening, nor inconvenience from any particular food.

After passing the winter in the House of Industry, he went into the country; but returned at the end of autumn, extremely debilitated, having suffered much from hardship and intemperance. From this time, it is observed, he gradually declined, his appetite continuing tolerably good, but
his

his bowels weak, till he died, which happened about six weeks after his return.

On examining the body after death, the wound was found to penetrate the stomach in the centre of the great curvature, and from the adhesions of the liver, colon and integuments, a very considerable stricture was formed, so as to give the stomach the appearance of a double bag, with the opening in the middle; the duodenum was enlarged beyond the size of the colon, and seemed to have in some measure performed the functions of a second stomach. The colon was firmly attached to the lower part of the stomach by a ligamentous substance, that our author thinks, must have been formed by the inflammation subsequent to the wound. All the other viscera, he observes, were found, and perfectly natural both in appearance and situation.

Dr. Burrowes concludes the history of this extraordinary case, with expressing his regret at his having been prevented from rendering it more subservient to medical purposes by the man's suddenly departing from the House of Industry without his knowledge, and returning to it in so debilitated a state; as such an opportunity,
his

he observes, of exposing aliments to the action of the succus gastricus *alone*, of ascertaining the effects of several medicines when confined to the stomach, and of making experiments on narcotics, he can hardly again expect to meet with.

For accounts of similar cases Dr. Burrowes refers to *Mem. de l' Acad. Royale de Chirurgie*, Tom. IV. page 124, where, in addition to two such instances related by Schenkius, (*Obs. Med. Lib. III. de Vuln. Ventr. Obs. cxxi.*) we learn, that M. Foubert preserved, in his museum, the stomach of a man who died in the Hotel Dieu at Orleans, which had an opening externally from a wound, and into which the person, while alive, used frequently to inject different aliments, and digested them as well as those taken by the mouth; and that Covillard, in his *Observations Iatro-Chirurgiques* (*Obs. xli.*) relates the case of a soldier who received a wound in the upper and lateral part of the epigastrium, through which his aliment issued. His surgeons by means of tents enabled him to retain his food, and by degrees he recovered his health; but the wound of the stomach never closed, and he was constantly obliged to make use of a silver plug. Covillard made him take out this plug in the presence of several

several medical men, and they saw about a spoonful of an imperfectly digested chylous substance issue from the fistulous opening; after this he swallowed a glass of wine, which was immediately discharged through the same passage. It was observed that in other respects the patient had the appearance of a man in perfect health.

CATALOGUE OF BOOKS.

1. A Treatise on the Dropsy of the Brain, illustrated by a Variety of Cases: to which are added Observations on the Use and Effects of the *Digitalis purpurea* in Dropsies. By *Charles William Quin*, M. D. Fellow of the King's and Queen's College of Physicians, Physician General of his Majesty's Army in Ireland, and of the Royal Hospital for Invalids near Dublin. 8vo. *Murray*, London, 1790.

2. A Practical Dissertation on the Medicinal Effects of the Bath Waters. By *William Falconer*,

coner, M. D. F. R. S. and Physician to the Bath Hospital. 8vo. *Robinsons*, London, 1791.

3. Institutes of Natural History; containing the Heads of the Lectures in Natural History, delivered by Dr. *Walker*, in the University of Edinburgh. 8vo. Edinburgh, 1792.

4. A sketch of a Plan to exterminate the casual Small Pox from Great Britain, and to introduce general Inoculation; to which is added a Correspondence, on the Nature of variolous Contagion, with Mr. Dawson, Dr. Aikin, Professor Irvine, Dr. Percival, Professor Wall, Professor Waterhouse, Mr. Henry, Dr. Clark, Dr. Odier, Dr. James Currie: and on the best means of preventing the Small Pox, and promoting Inoculation, at Geneva; with the Magistrates of the Republic. By *John Haygarth*, M. B. F. R. S. Lond. F. R. S. and R. M. S. Edinburgh, and of the American Academy of Arts and Sciences. 2 vols. 8vo. *Johnson*, London, 1792.

5. An Experimental Inquiry into the constituent Principles of the Sulphureous Water at Nottingham, near Weymouth: together with Observations relative to its application in the Cure of Diseases. By *Robert Graves*, M. D. 8vo. *Johnson*, London, 1792.

6. Observations on the Bark of a particular
Species

Species * of Willow, showing its superiority to the Peruvian, and its singular Efficacy in the Cure of Agues, Intermittent Fevers, Hæmorrhages, etc. illustrated by Cases. By *Samuel James*, surgeon. 8vo. *Johnson*, London, 1792.

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10. A Guide for Gentlemen studying Medicine at the University of Edinburgh. By *J. Johnson* †, Esq. 8vo. *Robinsons*, London, 1792.

11. An Essay on Generation. By *J. F. Blumenbach*, M. D. Aulic Counsellor to his Britannic Majesty, and Professor of Physic in the University of Gottingen; translated from the German ‡. 12mo. *Cadell*, London, 1792.

* *Salix Latifolia* Linn.

† Fictitious.

‡ By *Alexander Crichton*, M. D.

12. Observations on the Scurvy ; with a Review of the Opinions lately advanced on that Disease, and a new Theory defended, on the approved Method of Cure, and the Induction of Pneumatic Chemistry ; being an Attempt to investigate that Principle in recent vegetable Matter, which, alone, has been found effectual in the Treatment of this singular Disease ; and from thence to deduce more certain Means of Prevention than have been adopted hitherto. Second Edition. By *Thomas Trotter*, M. D. Surgeon of his Majesty's Ship the Duke. 8vo. *Longman*, London, 1792.

13. Medical Botany ; containing Systematic and General Descriptions, with Plates, of all the Medicinal Plants, indigenous and exotic, comprehended in the Catalogues of the *Materia Medica*, as published by the Royal Colleges of Physicians of London and Edinburgh, accompanied with a circumstantial Detail of their medicinal Effects, and of the Diseases in which they have been most successfully employed. By *William Woodville*, M. D. of the Royal College of Physicians, London. In 3 vols. 4to. *Phillips*, London, 1790—3.

14. Experiments on Animal Electricity, with their Application to Physiology ; and some Pathological and Medical Observations. By *Euse-*
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bis Valli, M. D. Corresponding Member of the Royal Academy of Sciences of Turin. 8vo. *Johnson*, London, 1793.

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and

and Fever ; together with Conjectures upon several other Subjects of Physiology and Pathology. By *Thomas Beddoes*, M. D. 8vo. *Murray*, London, 1793.

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* See Volume II. page 208.

29. A Dissertation on the Structure of the Obstetric Forceps, pointing out its Defects, and especially those with the double curved Blades ; at the same Time, shewing particularly the safe Application of those with single curved Blades, as geometrically proportioned and constructed : and likewise, shewing the Necessity and good Effects of several new Forms of the single curved Blade, as the narrow, fanged, and refluted, in certain Cases of retarded Labours ; together with Cautions, Remarks, and Reflections on the Conduct and Management of Labours in general. By *R. Rawlins*, Surgeon, Oxford. 8vo. *White*, London, 1793.

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158. Saggio di alcune Ricerche su i Principi e sulle Virtù della Radice di Calaguala. 8vo. Pavia, 1791.

The plant which is the subject of this Essay, was first mentioned in the London Medical Journal, Vol. V. p. 423. Its botanical history has not yet been satisfactorily ascertained, but it is said to be a species of fern growing in Quito. For several years it has been much employed in different parts of Italy, particularly in the Duchy of Mantua, in inflammatory complaints, in catarrhs, phthisis, and dropsy: The Academy of Sciences at Mantua, were therefore induced, in 1790, to make it the subject of a prize question, the objects of which were to determine the chemical and medicinal properties

ties of this plant. Signor Carminati, Professor of Physic at Pavia, made some inquiries relative to this subject, the results of which he has given to the public in this Essay, but without having aspired to the prize. He gives a chemical analysis of the root in question, and describes its sensible qualities, together with its effects in different diseases.

159. Sulla polmonare Tifichezza; Dissertazione epistolare indirizzata al Nobile Signore *Benigno Cannella* celebratissimo Professore di Medicina e Chirurgia nella Città di Riva, da *Luigi Francesco Castellani*, Medico primario dell' Archiospedale di Mantova, e Prof. di Medic. Prattica. 8vo. Mantua, 1791.

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